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ABSTRACT

The ninth volume of this 10-volume report summarizes and synthesizes the outcome of the study, describing the design, sample, analysis procedures, and findings from the examination of federal and state dissemination strategies and from the survey and field studies of local sites. The examinations of the federal and state components result in one major recommendation: to establish a single federal office for facilitating productive exchange between the array of efforts using dissemination for school improvement. The examinations of local site components, both survey and field studies, reveal that the local adoption of new practices is influenced by the motives and attitudes of teachers and administrators, the assistance activities of central office and external facilitators, and the match-up between current practice and innovation. Antecedents, characteristics, and outcomes of practice implementation are discussed, and 10 major conclusions are derived for policymakers at all levels. These bear on the lack of coordination between federal dissemination strategies, the interface between federal and state programs, and the ingredients of successful adoption and implementation at the local level. (TE)

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People, Policies, and Practices: Examining the Chain of School Improvement, Volume IX

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Implications for Action

EA 016 488

Volume IX

Implications for Action

A. Michael Huberman
David P. Crandall

A STUDY OF DISSEMINATION EFFORTS SUPPORTING SCHOOL IMPROVEMENT

David P. Crandall, Ed.D.
Principal Investigator

The NETWORK, Inc.
Andover, Massachusetts

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PREFACE

The Study of Dissemination Efforts Supporting School Improvement was a comprehensive, three-year examination of a broad spectrum of federal and state dissemination activities. It included a close look at selected strategies designed to improve schools by promoting the adoption and use of new educational practices developed with federal support. Sponsored by the Office of Planning and Evaluation of the U.S. Department of Education, the study was conducted by The NETWORK, Inc., in collaboration with several other research and development organizations, including the University of Texas' R&D Center for Teacher Education, the American University's Knowledge Transfer Institute, the Center for Policy Research and UCLA's Center for the Study of Evaluation.

The study examined four distinct levels of the educational system: federal, state, external agent, and local. A "zoom lens" design began with an overview of forty-five programs in the U.S. Department of Education that engaged in dissemination or dissemination-related activities. Fifteen of these programs were selected for in-depth analysis at the federal level. At the state level, we examined dissemination activities in ten states representative of the continental forty-eight.

Four strategies, each reflected in a selected federal program, were chosen for in-depth investigation at the local level. The strategies, and their programmatic exemplars, are:

- Interpersonal Linkage of Validated Practices, exemplified by the National Diffusion Network (NDN), including its ESEA Title I subnetwork

- Commercial Distribution, exemplified by the Bureau of Education for the Handicapped Marketing Program

- State Administration of Dissemination, exemplified by ESEA Title IV-C Adoption Grants

- Local Development/Invention, exemplified by ESEA Title IV-C Development Grants

A close look at 146 schools and school districts in the ten states, whose improvement efforts were supported by one of these programs, allowed us to answer three important questions:

1. To what extent are new practices supported by the federal programs being implemented in schools?

2. What factors influence successful implementation?

3. How are policies, conceived at one level, implemented at other levels?

Because three of the four programs chosen rely on implementing practices developed outside the local setting we were interested in the vehicles employed by the programs for dissemination, particularly the assistance provided by external agencies and individuals.

Focusing-in the lens one more time, we conducted an intensive field study of twelve of our local sites over the course of a school year. Here, we were able to examine the interpersonal and organizational dynamics surrounding implementation as school people worked to incorporate innovative practices.

The study as a whole was a massive effort that required the energies and resources of countless people. Altogether, we:

- interviewed and surveyed over 5,000 educators;
- accumulated over 1500 hours of interview tapes;
- spent over 700 person-days "on the road;"
- made approximately 150 observations; and
- analyzed over 400 documents.

The three years were spent in design (Year 1), data collection (Years 1 and 2), and data analysis (Years 2 and 3).

The master report, People, Policies, and Practices: Examining the Chain of School Improvement, consists of ten volumes which describe the results of the study. Volume I (Setting the Stage for a Study of School Improvement) sets the study within a framework of federal school improvement policies and past studies of these policies. The objectives, design, and research methodologies used in the study are also described.

Volume II (Portraits of the Changes, the Players, and the Contexts) describes what was found in the 146 school districts that comprised our local site sample. Characteristics of the people, the innovations, and the settings are reported, as are the contributions of external assistance and the outcomes accrued from involvement in school improvement.

Volume III (Models of Change) introduces the causal models of the school improvement process that helped us determine what factors influenced success. The findings are reported for several outcomes at both the organizational (school) and individual (teacher) level.

In Volume IV (Innovation Up Close: A Field Study in Twelve School Settings), we examine the dynamics of twelve districts -- varying in experience with the new practices, in community type, and in the scope of their efforts -- involved in improvement efforts supported by the National Diffusion Network or ESEA Title IV-C

Local Development Grants. The volume provides an in-depth picture of the motivations, behaviors and aspirations of school people as new practices are implemented and maintained.

Volumes V, VI and VII analyze the government's role in dissemination for school improvement. In Volume V (Dissemination for School Improvement: An Analysis of Nine Federal Education Programs), we profile nine widely different federal programs sponsored by the then U.S. Office of Education. The volume examines the assumptions underlying the programs, and how these shaped each program's dissemination strategy.

In Volume VI (Dissemination at the National Institute of Education: Contending Ideas about Research, Practice, and the Federal Role), six federal dissemination programs funded by the NIE are examined. We tell the story of the programs' emergence, implementation, and -- to the degree possible -- impact, and discuss implications of the programs for the federal role in dissemination.

In Volume VII (Configuration of Federal and State Dissemination Activities), we present a comparative analysis of federal-state relationships for dissemination and school improvement in our ten sample states. We examine the impact of federal initiatives and other critical influences on the roles and operations of state education agencies.

Volume VIII (The Infrastructure of Innovation: The Case of the National Diffusion Network) examines the communication and rewards structure of a single federal program -- the National Diffusion Network. We examine the NDN as a decentralized service delivery system which has evolved to a grass-roots effort with greatly reduced dependence upon federal leaders for direction and control. Network analysis, based on a census of all members and adjuncts of the NDN, provides interesting insights into a unique federal program.

Volumes IX and X summarize our efforts. Volume IX (Implications for Action) integrates findings from all components of the study, and discusses implications for policy and practice at all levels of the educational enterprise. Volume X, our Executive Summary, provides a distillation of study methods and findings for a general audience, as well as an annotated bibliography of the report series and related study documents.

ACKNOWLEDGEMENTS

The Study of Dissemination Efforts Supporting School Improvement engaged literally a cast of thousands. At the peak of activity, it involved some 5,000 educators from all parts of the country, with a wide range of roles and responsibilities, whose only commonality was the desire to improve the education of our nation's youth. Although it is impossible to personally thank everyone, we pause here to acknowledge their important contributions.

Our Project Officer: Ann Bezdek Weinheimer, for her superb guidance and unending support;

Our Policy Advisory Group: Dave Clark, Ellie Farrar, Michael Fullan, Hendrik Gideonse, Egon Guba, Milbrey McLaughlin, David Wiley, and Ward Mason, for their help in conceptualization and design, and their thorough and honest feedback;

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Our NETWORK Support Team: Pat Bales, Margaret Broderick, Ronna Coppola, Kory Hellmer, Clif Lund-Rollins, Elsa Martz, Nancy Lund, Nick Thorkelson, Annmarie Lenson, and Ruth Anne Shepard who edited, typed, organized, copied, served, drew, retyped, collated, hustled, and cleaned up after us times too numerous to mention, for all of that and more;

And finally, to the people who other studies label "respondents" but whom we considered and related to as "collaborators": over 4,000 teachers, nearly 400 building and district administrators, 100 people in external assistance roles, 50 personnel in ten state departments of education and 100 federal program staff, for their dedication to making schools a better place for people, and helping us learn the good news:

SCHOOL IMPROVEMENT EFFORTS ARE ALIVE AND WELL
IN SCHOOLS ACROSS THE U.S.!

And, on a more personal note:

They said it couldn't be done; parts of it, yes. The whole humongous thing? No way! But we believed, we persevered, and we succeeded.

Managing (producing?) an enterprise of this scale and complexity was not unlike being entrusted with a string of race horses while also being expected to efficiently operate race tracks all over the country. One's charges must run, sometimes for practice, sometimes in claim races, sometimes for fun, and sometimes for substantial purses. At the tracks, stands must be cleaned, popcorn purchased, receipts counted, special events trumpeted, sound systems repaired. Oh yes, add to this the necessity of producing a comprehensive story of each season's successes (and failures), with appropriate statistical detail for the aficionados and photos for the occasional attendee. Perhaps such images will help you connect with the range of reactions I have had to this point, when all that remains of the season is the final manuscript which down-plays the thrills and recalls the tribulations.

Although flashes of Hercules and his labors in the stables come to mind, as do painful recollections of the occasional reluctance of the imported studs to perform as desired, and more than a few false breaks at the gate, overall I am immensely satisfied with both the process and the product of our collective odyssey. On balance, it was a frolic with a wonderful group of thoroughbreds.

All the players in our production performed admirably; their contributions were manifold. Three are worthy of special mention, one whose contribution was the necessary catalyst at the front-end, enabling our adventure to commence and continue; one whose firm hand kept us on our course; and another whose contribution at the back-end ensured the successful conclusion and chronicling of our journey with style and substance. My very special thanks to:

Ann Bezdek Weinheimer, whose courage in championing our unconventional approach launched us on our journey with confidence. During the study, Ann was our trailblazer and guide through the bureaucratic thickets. We benefited mightily from her detailed and hard-hitting critiques, her unwavering support for our efforts through the low moments and her praise at the high ones. Perhaps most of all, we treasure her belief in us and her infinite patience.

Joyce Bauchner, whose truly special ability moved us from abstract conception to earthly operation. Her commitment to task execution and consummate attention to detail served the study better than the best Master Sergeant. (Plus she's incredibly bright and doesn't smoke cigars.) Her formal titles and responsibilities belie the breadth and depth of her contribution to thinking up and working through this massive endeavor. As she remarked more than once, "Well, no one has ever done this before, but let's get on with it." And we did. My plans and our various teams' intentions, difficult as they were to arrive at, were just the first step. Seeing that they were carried out, by dispersed groups in six locations, on time and budget and in keeping with the overall conception was up to Joyce. Without her we'd still be picking up the stragglers and searching for the lost interview tape.

Susan Loucks, whose capacity for concentration, sustained high quality output and tolerance for my idiosyncracies is surpassed only by her unparalleled modesty, calm and good humor, is the single most important reason that the complex innovation of this study is represented through its master report series and numerous other publications. Individual authors have each made significant contributions in their own right. Weaving individual strands of reasoning into a coherent fabric that is both sturdy and stylish stands as the latest in a string of behind the scenes contributions that have been too often unacknowledged. Hers has been the longest and hardest race of all, because it's been run after the others have bedded down and the spectators have left the track. Had this been a race for the roses, the bouquet would belong to Susan.

Each has contributed in a special way to my realizing a major dream. From a field of exceptionally talented thoroughbreds, they have been a trio of true believers. Without these three, it wouldn't have happened; with them, I would try anything.

David P. Crandall, Ed. D.
Principal Investigator

SUMMARY: VOLUME IX

Volume IX begins with a detailed summary of the background and design of the study. Previous research is examined, and the sampling, data collection and data analysis strategies are described. For each of the study objectives, we discuss the major findings and their implications for policy and decision-makers.

The first three objectives constituted the federal and state components of the study. When we examined the assumptions underlying federal dissemination strategies (Objective 1), we found great diversity. Much of the diversity rests in different views, both implicit and explicit, of the federal role, particularly whether the government should actively reach out to stimulate and encourage school improvement, or whether it should remain a passive repository of information and ideas to be tapped at will by local schools. The operating structures of most dissemination strategies (Objective 2) reflect their underlying assumptions, so we found a great deal of diversity there also. Of the 45 programs we examined, we found them disseminating different things, with different funding levels, through different kinds of activities, using different quality control measures and different delivery mechanisms.

Finally, our examination of ten states' dissemination activities (Objective 3) revealed two distinct modes of approaching school improvement: maintenance and development. Maintenance states minimized dissemination activity, accommodating administrative requirements of federal programs, but with little coordination between programs and little emphasis on an integrated effort to encourage and assist local innovation. Nonetheless, examples of local school improvement efforts were evident, if not pervasive. In contrast, development states had major school improvement programs underway, often combining various federal initiatives with state-identified practices and materials.

Our examination of federal and state dissemination strategies led us to one major recommendation: to establish a single federal office with primary responsibility for facilitating productive exchange between the array of efforts using dissemination for school improvement. Such an office would encompass the generic dissemination programs (e.g., National Diffusion Network, Market-Linkage, ERIC) and have staff knowledgeable of dissemination options to work with program personnel in designing and coordinating their dissemination activities.

Objectives 5 and 6 were pursued through our local site components (both survey and field studies). We found that particular characteristics of adopters (people, schools and districts) and innovations influenced the adoption of new practices. These included the motives and attitudes of teachers and administrators, the assistance activities of central office and external facilitators, and the match-up between current practice and the innovation. Several recommendations for increasing adoption success included the use of in-person assistance from external facilitators, enlisting the involvement of central office administrators, and attending to users' incentives.

A close look at implementation, and factors that influenced its success, yielded three distinct phases: start-up, initial implementation, and later implementation. We found inadequate readiness, rough beginnings, considerable adaptation of the practices, and limited follow-up assistance in many of the sites. Recommendations for ensuring successful implementation included investing as many assistance resources after implementation as before and limiting adaptations in the innovation as originally designed.

We examined a large number of outcomes of school improvement efforts. In this volume we report on the complex of factors and steps that we found leading to their achievement. Recommendations for achieving outcomes included providing ample assistance and strong administrator direction throughout the phases of the effort, attending to the details of institutionalization, and using innovations as vehicles to increase instructional and managerial skills.

Ten major conclusions of the study are:

1. Education Department dissemination activities are not tightly coordinated, oftentimes not even minimally coordinated.

2. In part, lack of coordination is a function of differences in basic assumptions about what to disseminate and how best to do it.

3. Federal initiatives in dissemination do not have much to do with what happens at the state level.

4. The ED programs are delivering farther-reaching and more consequential changes into a conventional school environment than had been supposed.

5. The ingredients of successful adoption and implementation identified in other major empirical studies are also operative in this study (e.g., the benefits of using well-designed validated innovations and the critical importance of in-person assistance).

6. "Forceful leadership" is a strategy that often delivers major, impact-producing, and institutionalized practice changes.

7. Innovations entailing significant practice change live and die by the amount of assistance they receive.

8. Site personnel implementing new practices who do not attend specifically to their institutionalization may have ephemeral results.

9. School building staff do not experience federal dissemination strategies as more or less intrusive than state or district strategies.
10. The infrastructure for school improvement is fragile at this time; changes in federal and state roles and in funding priorities threaten future improvement efforts.

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INTRODUCTION

Research is only worthwhile if its results affect what happens afterwards. The Study of Dissemination Efforts Supporting School Improvement was meant to influence federal policy -- to portray for decision-makers what over ten years and millions of dollars of investment in the nation's schools have brought, so they can make more informed decisions about their role in the future.

But the path from research findings, as reported in our early volumes, and policies that reflect those findings, is long and hard. It is the researcher's role to go the first mile, to translate the raw material into language and concepts that communicate and map well onto the reality of our educational system. In this volume we assume that responsibility by interpreting the study's findings so they may be acted upon by policy and decision-makers at all levels.

But because this may be the only volume read by many, we begin with a substantial, integrated summary of the eight previous volumes, reviewing the study objectives, design, and component parts. We then organize our discussion of the findings and their implications by the five research objectives.

Chapter IV covers the objectives related to federal and state components, and Chapter V discusses learnings from the local site components. Finally, Chapter VI integrates the findings into ten messages or general conclusions. Here we also discuss study findings in light of earlier research, of current realities of our education system, and of additional research needed to enhance our understanding of school improvement.

CHAPTER I: BACKGROUND AND OBJECTIVES OF THE STUDY

Rationale for the Study

In 1978 the U.S. Office of Education decided to take a sweeping look at the large number of dissemination strategies that it supported to encourage improvement in schools. USOE staff felt that the accumulated results of studies completed or underway did not provide both the broad-based and intensive understanding of the improvement process the office was orchestrating. This new study could portray the "state of the scene" in federally supported dissemination, while also filling in gaps in the knowledge base on which federal policy could rely. [At about the same time, the National Institute of Education was designing a related study of its R&D Utilization Program. Its findings have recently become available (Louis & Rosenblum, 1981).]

In effect, that knowledge base was insecure. The Rand Change Agent studies (Berman & McLaughlin, 1975, 1978) had largely discredited federal school improvement policy, but in fact had only addressed a piece of it, the seed money programs (e.g., ESEA Titles III and VII, Vocational Education, and Right-to-Read) designed to stimulate local development. Other studies (Emrick, Peterson & Agarwala-Rogers, 1977; Louis & Rosenblum, 1981), focusing more on externally developed and disseminated practices, suggested that a policy combining external assistance, validated practices, and a functional school-level problem-solving cycle, could positively effect school improvement. It turned out, however, that the link between federal and state policy and local practice was so tenuous and twisted that at the school district level there were more differences apparent within programs employing an 'external' or 'internal' model than between them. Further, none of the recent, large-scale studies had looked carefully at the implementation of practices at the classroom level, where both the greatest distortion of policy intents and their greatest influence on desired outcomes were likely.

The policy debate at the federal level between proponents of internal, home-grown school improvement and externally developed innovations spilled over into the discussion of whether "faithfully" executed adoptions were possible or whether highly adapted practices were inevitable, and perhaps even worked better and yielded better outcomes. The Rand studies, which had helped significantly our understanding of the interface between the innovative project and the school, saw adaptation as a largely inevitable and positive coping strategy. On the other hand, SRI's study of the National Diffusion Network (NDN) (Emrick et al, 1977), although based on rather narrowly drawn survey items, found fidelity to the original project design to be associated with successful implementations. Note that each study was looking at different sides of the phenomenon -- the SRI study at externally developed, quality-controlled products and the Rand study at locally developed projects of unknown quality. Also, Rand was looking at school- or district-level adaptation and SRI more at individual-level adoptions. But neither looked dynamically and intensively at new practices as they "hit the classroom." It was imperative that policy-makers and program managers find out how users actually incorporated new materials and techniques in their ongoing practice, how much and how they adapted these products and how much was left of them after a few years.

Previous work had also highlighted a somewhat diffuse notion of *teacher "commitment" and "ownership"* which translated into collegial planning, project design and implementation. But no one had attended to the role of commitment in the use of disseminated practices, which was one of the cornerstones of many of the USOE school improvement strategies. What were the opportunities for teacher involvement in this latter case, and how much difference did participation make in determining ultimate outcomes, such as faithful implementation and stable, routine use?

Despite the seminal work done by Rand, /I/D/E/A/ (Bentzen, 1974) and the Texas Research and Development Center (Loucks & Hall, 1979), there was no closure about the *role of building administrators*. The Texas studies had tied differences in teachers' use and feelings about new programs to principals' commitment and active support. The Rand and /I/D/E/A/ studies also associated positive outcomes with principals' success in setting priorities, generating incentives, establishing workable conditions for use of the new practice and providing both leadership and support. On the other hand, the SRI study of the NDN found that principals did not make a decisive contribution to project implementation in the case of *disseminated* practices. Nor was it clear which *specific* behaviors of principals helped users to get on top of new practices. It was also likely that the dynamics between teachers and principals were more dense, and possibly more conflict-ridden, than larger-scale studies were indicating.

Strikingly, recent research has spent little time on the *role of central (district-level) office administrators*. Central office staff have been mentioned summarily or as an indistinct, conglomerate locus of "district support." The Rand studies found that, at minimum, endorsement from the central office was needed for implementation success, and that projects were nearly always doomed to failure when well placed individuals at the district level worked against them. Similarly, the /I/D/E/A/ Study mentioned district level support as helpful -- although not critical -- in schools that improved. Rand further reported that "local leaders," including, presumably, people at the district level, who knew the content areas covered by the new practices and had organizational and interpersonal skills, were critical agents for achieving desirable outcomes.

Clearly more had to be known about such influential actors in the local scene. Exploratory work and accumulating craft knowledge showed that district administrators were often the initiators and advocates of new practices at the local sites, and that many of these practices came from outside the district. The roles of central office staff as conveyers and advocates of innovations were probably more decisive than any systematic study had shown. Moreover, virtually nothing was known about their role later in the process -- in providing authorizations, in unlocking local resources, in laying the groundwork for institutionalization.

External assistance was still another crucial but imperfectly understood factor. The well documented and widely publicized failure of federal demonstration programs (e.g., Berman & McLaughlin, 1975; Baer, Johnson & Merrow, 1976) to spread naturally to new sites beyond their own boundaries had lead to agreement that a vital piece -- a link -- was missing. People and agencies outside a given school district had facilitated the use of new practices for some time, but little was known about who they were, what exactly they did and what, if any, difference they made. Gradually, conceptual and empirical work began filling in the gaps. In-person assistance was shown to be decisive in the adoption of new practices. "Linkage" between local needs and external resources was, as Havelock (1973) had postulated, a decisive and usually missing component, and different kinds of linkage functions met different local needs. Early studies (Sieber, Louis & Metzger, 1972) suggested that "linkers" who were more generalists than specialists, who were located -- unthreateningly -- outside the school district and who lacked formal administrative power, had the traits that made them acceptable to local school people. This, coupled with personal contacts offering and delivering information, made for a significant increase in the school's information-seeking behavior. Likewise, the State Capacity Building study (Royster, Madey, Decad & Baker, 1981), underscored the role of external linkers as important to increased information use.

The SRI study of the NDN added measurably to our knowledge about the contribution of external agents to the implementation of new practices. It found different and important roles played by the two kinds of linkers in the NDN. Developer/Demonstrators, who had developed a specific practice, and were funded to assist adopters in its use, provided in-depth information and training prior to implementation with some follow-up assistance and training during implementation. Most important were their interpersonal skills in relating to teachers, and in personally following up by telephone or on-site to assist, evaluate, and reassure. State Facilitators, whose official function was to help schools identify needs and select from the range of NDN practices, were active in creating awareness through print materials and presentations, arranging for training by D/Ds, and helping local schools secure resources and organize for the new practice. They also made follow-up visits to assist, evaluate, and reassure adopters. Yet despite these early forays, very little detail existed about the linkers' role in implementation assistance, and virtually nothing was known about their contributions to institutionalization.

Two studies -- Rand and /I/D/E/A/ -- concluded that such external assistance was not necessary for successful school improvement. Rand's examination of local development efforts indicated that the "experts" brought in from the outside (typically university professors) lacked commitment to the projects and most often performed "hit and run" workshops without follow-up. The /I/D/E/A/ League relied heavily on strategies developed through an internal improvement process, where an externally-developed practice was not sought.

Clearly, the idea in the projects that were the objects of these latter studies was not to link the school with externally developed knowledge as much as to develop internal capacities to solve problems by the invention of new local practices. But it is doubtful that, in the real world, schools are either localist or colonized. Home-grown innovations probably rely on much external spadework and borrowing; imported practices need internal facilitation to survive. The entire "linkage" notion assumes a balance between local problem-solving and the use of external expertise at appropriate moments in the problem-solving cycle. There was no overriding empirical evidence to show that local sites were not keeping such a sensible balance. What was going on needed re-ordering and a more broad-gauge analysis.

In particular, little information bearing on the contribution of external assistance to school improvement had been integrated across strategies, or between "levels" of individuals and organizations involved in an improvement effort (i.e., teacher, school, district, linking agency, state, federal government). Did successful external assistance roles differ according to the school improvement strategy being employed (e.g., did local development call for different kinds of help other than dissemination)? How did the activities of external assisters affect individuals at different levels (e.g., did some work for teachers, others for principals, others for district staff)? Finally, which arrays of external assistance roles could federal policies encourage, given the various forms of school improvement strategies?

Two final areas of prior research needed more resolution in order to guide policy. First, there was evidence from the Rand and /I/D/E/A/ studies that a school climate receptive to a new practice was an important ingredient in ultimate success. In places with positive outcomes, teachers described the school as "flexible," "cooperative," "friendly," and as having a strong task orientation along with teacher influence over decisions affecting the school. Here again, however, we are in the universe of practices introduced from within. Are the same "climate" factors influential in the case of disseminated practices? Is it actually the case that more authoritarian modes of school-wide management are barriers to the successful implementation of new practices, or do we have ideological blinkers on? Finally, what role is played by the external "climate" -- the relative receptivity to change and the administrative mores in the central office, on the school board and among parents' and teachers' associations?

Finally, the most recent work (Yin, 1978) on the process of using and institutionalizing a new practice in such public service organizations as schools shows that most large-scale studies have been variously top-loaded (concentrating on the front-end or adoption phase), black-boxed (measuring adoption, then measuring outcomes and inferring the connections between the two) or cross-sectional (looking at groups of projects, rather than tracing the implementation of individual practices from their source to an implementing classroom and determining, then pooling, the local conditions of successful use to extract meaningful generalizations). The present study, notably its field study component, had an opportunity to take a less monolithic, more dynamic and longer-lingering look, and to look both at locally developed and disseminated innovations.

Objectives of the Study

This background sets the frame for the study objectives, as formulated by USOE and incorporated into the plan of work:

1. To examine assumptions underlying current and alternative dissemination strategies.

Although several strategies had been studied to better understand their operations and impacts, no analysis had been made of their underlying assumptions. Such an analysis would show how assumptions played out in policies, strategies, operations, and actual improvement efforts of a particular program. Volumes V (Shive & Eiseman, 1982) and VI (Thompson, 1982) of the master report series examine these matters for selected USOE and NIE programs and strategies.

2. To explore and describe the structure and operations of major dissemination activities conducted by various US Department of Education programs.

The evolution of federal dissemination policy indicated a profusion of programs funded by the Department of Education, most of which had a significant dissemination component. In an effort to rethink federal policy, USOE needed a "directory" of these programs to more clearly indicate which programs were using which strategies to actively pursue which kinds of activities. The study produced such a directory, an overview of 45 dissemination and school improvement programs or related activities (Hellmer, Harris & Thompson, 1981).

3. To examine the relationship between federal dissemination efforts and state dissemination activities.

Extending the previous objective, which sought to examine actual and potential coordination within federal programs, USOE was also interested in the interface between state and federal dissemination activities. USOE sought a clearer understanding of whether, and if so, how these influenced implementation of practices at the classroom level. In addition, it wanted to show whether activities at two levels -- state and federal -- often with similar intentions, either complemented, interfered with, or missed each other altogether. Volume VII (Cox & Thompson, 1982) of this master report series focuses on these issues.

4. To design and implement a formative evaluation system for the NDN.

This was the "service component" of the study, meant to use what was known about NDN objectives, activities, and procedures, to help contractors analyze and improve their own effectiveness.[1]

5. To determine how and how well exemplary projects are implemented in new sites and the conditions that ease or constrain their effective use.

This was the main empirical thrust of the study. The findings are reported comprehensively in Volumes II (Loucks, Cox, Miles, Huberman & Eiseman, 1982b), III (Bauchner, Eiseman, Cox & Schmidt, 1982), and IV (Huberman & Miles, 1982) of this series. The present volume consolidates the overall findings and explores their implications in greatest detail.

6. To recommend ways in which dissemination activities should be conducted in the future.

Achieving the first five objectives should make it possible to discuss the merits and shortcomings of existing federal dissemination efforts. The goal was to generate both penetrating policy recommendations and specific suggestions for helping educators at all levels further their school improvement efforts.

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[1] This evolved into a separate product, a guidebook for practicing disseminators (Bank & Snidman, 1981), which is available from The NETWORK, Inc.

CHAPTER II. OVERVIEW OF THE PRINCIPAL STUDY DESIGN, SAMPLING FRAME, AND DATA COLLECTION AND ANALYSIS

The Sample

Choosing the Dissemination Strategies

The overall study design called for a sample of local implementations supported by one of the several government strategies. Four main strategies, which reflected the dominant policy alternatives being debated at the time and which aspired to changing and improving classroom practice, were selected:

(1) Interpersonal linkage of validated practices. With this approach, the federal government reviews, then disseminates to local schools a set of validated practices. Dissemination is conducted through face-to-face contacts between school personnel, the developers of the practice and "professional disseminators," the latter two groups sanctioned and supported by the government. Choice from among the validated alternatives is made by the local school. The National Diffusion Network was the program chosen to represent the interpersonal linkage strategy. Within this strategy, a subset of practices targeted specifically to disadvantaged children (ESEA Title I) was also included.

(2) Commercial distribution. Here, the government also reviews the practices to be disseminated, but farms out their distribution to commercial enterprises. Adopting schools purchase materials or services as a result of advertising or mailing. The Bureau of Education for the Handicapped (BEH) Marketing Program represented this strategy. (BEH is now called the Office of Special Education.)

(3) State-administered dissemination. At the outset, we expected to find several pertinent programs here, all providing support by state educational officials to both adopters and developers. Surprisingly, when the criteria of intended classroom impact was invoked, virtually all candidates were eliminated. And, there were no instances where a state-initiated and funded program (vs. allocation of federal dollars) existed. Thus, our choice for this strategy devolved to the organized dissemination phase of ESEA Title IV-C (typically known as Adoption-Adaptation Grants programs). Although interpersonal linkage is also an aspect of this strategy, its organization and administration as a state (vs. federal) initiative was the distinguishing feature of interest.

(4) Local invention/development. This is a strategy whereby local schools are given funding and consultation to develop practices that meet self-defined needs. The

assumption is that indigenous ideas and resources are used and that substantive decisions about program design remain in local hands. ESEA Title IV-C development grants to local schools represented this strategy.

Drawing the Sample of States

In order to capture the array of such activities nationwide, a representative sample of ten states was drawn. This was a small enough number to allow a reasonable number of local sites for each state (we averaged 14.6 research sites per state), yet large enough to represent national distributions on eight sampling dimensions: total number of students, per-pupil expenditures, percentage of students in urban districts, number of students per district, number of federally supported centers (e.g., teachers' centers), USOE funds divided by the number of students, attendance at the 1978 Dissemination Forum (a proxy measure of active dissemination capacity within the state), and the elective-appointed status of the state superintendent of schools (a proxy measure of political diversity). The ten states were selected using a computer program that randomly divided the 48 continental states into a 10-state sample group and 38-state non-sample group matched with respect to mean scores and standard deviations on the eight sampling dimensions.

Selecting School Districts and Schools

For each of the ten states, a census of all school districts involved in the four strategies was compiled. Using a three stage iterative process, sites were selected for inclusion in the study. Each was associated with a particular innovation/project. Ultimately, a total of 146 local districts, associated with one of 61 ongoing projects, participating in one of the four selected strategies, were identified in the ten-state sample. Most projects were being implemented at multiple sites, as reflected in the final sample of local sites shown in Table 1. The Title IV-C Local Development sites, by their nature, were single site phenomena at the time of our study.

Apart from demographic considerations, sites were selected or dropped as a function of whether project implementation was underway, could be observed, and whether local personnel were willing to participate. That is, each represented an ongoing continuing activity; sites which responded that they had never adopted the practice (although reported as having done so) and those where implementation had been already aborted, were eliminated. Our interest lay in investigating and understanding activity, not inactivity. (Note, as we point out later, that this criterion does not eliminate unsuccessful sites.) The final sample was double checked to be certain that this pool of local sites adequately represented the larger universe of government-supported efforts using the four dissemination/development strategies. Thus, the final sample was representative of virtually all active school improvement efforts directed at classroom change then underway, excepting those individual local efforts not linked to any state or federal initiative.

Table 1: Distribution of Sites and Innovative Projects Among Programs

	NDN					
	Non-Title I	Title I	BEH	State-Administered	Title IV-C Local Development	Total
Number of Practices	12 (19.6%)	6 (9.8%)	6 (9.8%)	13 (21.3%)	24 (39.3%)	61 (100%)
Number of Sites	48 (32.9%)	26 (17.8%)	17 (11.6%)	31 (21.2%)	24 (16.4%)	146 (100%)
Number of practices in which only 1 site was visited	0	0	1	2	24	27
Number of practices in which exactly 2 sites were visited	1	1	1	6	0	9
Number of practices in which 3 or more sites were visited	11	5	4	5	0	25
Average number of sites visited per practice	4.0	4.3	2.8	2.4	1.0	2.9

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Within the school district, the study focused on five types of respondent: users, other building faculty (including support staff, nonusers), building administrators, district administrators and "local facilitators," i.e., people within the local district identified as having major responsibility for implementation of the practice. Table 2 shows the distribution of respondent types arrayed by dissemination/development strategy.

Selecting External Facilitators

Theoretically, a core component of three of the four strategies was the assistance provided by people outside the school district in order to facilitate local implementation. In some cases, there were "formal" external facilitators, people funded expressly to assist in innovation choice and/or implementation. For example, the NDN and state-administered dissemination programs had developers whose brief was to demonstrate the practice and provide training to adopters. In addition, the NDN funds at least one project per state with the explicit objective to facilitate adoption and implementation by local schools. "State Facilitators" service this objective by monitoring the needs of district schools, making schools aware of promising NDN practices, linking program Developers/Demonstrators with interested districts and providing some follow-up services once school personnel have adopted the practice and have been trained in its use.

There is also a more elusive group of "informal facilitators," people who help local school personnel with adoption or implementation but are not funded by any of the four programs in the study. These people were identified through calls made to local school personnel asking them to name anyone outside the district who had helped them develop, adopt or implement the new practices they were using. In all, 124 external facilitators were identified; 96 were eventually interviewed.

Data Collected for Different Respondent Groups

Looking over the respondent groups in Table 2 and adding to that the external facilitators should bring into focus a key facet of the study design: these are all people linked by their participation in a common event. The study thereby becomes a study not of implementation in general but of implementation of specific practices. This provides more focused, lower-inference data and yields findings of potentially higher external validity, than many other studies. Thus, we collected data from teachers who implemented the practice, developed by the developers we interviewed. The local and external facilitators we interviewed described what they did with, and said to, the teachers interviewed. More wide-scoped, generic data were also collected, both to determine the particularity of these events in the larger scheme of working life at the research sites and facilitators' host organizations, and to pin down the context in which the projects were being executed.

Table 3 lays out the instrumentation used and information sought for each of these respondent groups.

Table 2: Distribution of Respondents Among Programs

	NDN					
	Non-Title I	Title I	BEH	State-Administered	Title IV-C Local Development	Participants/Category
Teachers	144 (3.0/building)	103 (4.0/building)	22 (1.3/building)	59 (1.9/building)	65 (2.7/building)	393 (51.8%)
Building Administrators	48	26	17	31	24	146 (19.2%)
District Administrators	47	25	17	26	23	138 (18.2%)
Local Facilitators	27 (in 23 districts)	21 (in 16 districts)	2 (in 2 districts)	26 (in 20 districts)	6 (in 5 districts)	82 (10.8%)
Building Faculty	1,039 (in 48 schools)	595 (in 25 schools)	368 (in 14 schools)	477 (in 29 schools)	650 (in 21 schools)	3,129
Total Participants by Program	1,305 (33.6%)	770 (19.8%)	426 (11.0%)	619 (15.9%)	768 (19.8%)	3,888 (100%)

Table 3: Description of Instrumentation by Participant Role

Role	Instrument	Information Sought
Practice Developer	Practice Profile Interview	A detailed description of the nature and use of the practice, including ideal, acceptable and unacceptable variations; other attributes such as purpose, implementation requirements, pedagogical approach.
Teachers	Teacher Interview Teacher Questionnaire	A detailed description of teachers' experience with and use of the practice; including what they were doing with the practice; why did they try to use the practice; what kind of assistance did they get in the use of the practice, who provided this assistance; and what were the positive and negative aspects of the practice?
Building and District Administrators	Administrator Interview Administrator Questionnaire	A detailed description of their knowledge and experience with the practice; what was their evaluation of the practice; what were their plans for the practice; what was their role in terms of school improvement in general; what had their experience been with school improvement?
Local Facilitators	Local Facilitator Interview Local Facilitator Questionnaire	A detailed description of their role in implementation of the practice; what was their attitude toward the practice; what other things did they do in the district; what was their overall relationship to school improvement efforts?

Table 3: Description of Instrumentation by Participant Role (continued)

Role	Instrument	Information Sought
External Facilitators (total sample)	General External Facilitator Interview General External Facilitator Questionnaire	A description of the facilitators' work place, job, clients, strategies for school improvement, available resources and attitudes toward work.
External Facilitator (those who helped sample schools)	School Specific External Facilitator Interview School Specific External Facilitator Questionnaire	A description of the nature of contact with anyone in the local local school; the facilitator's description of the practice and how long it had been used in the school; the types of assistance the facilitator gave to local school - personnel trying to use the practice; the facilitator's attitude toward the practice and its use in that particular school.
Building Faculty	Building Work Climate Questionnaire	A general description of the work climate in the school; do teachers get along; how does the faculty view the principal; how do problems get solved; who makes the decisions?

Data Analysis

Survey data were appropriately coded, content-analyzed, cleaned and subjected to an hierarchical array of statistical analyses. These built from bivariate to multivariate runs and from there to causal modeling procedures using either standard least squares regression methods or maximum likelihood approaches (e.g., LISREL). Volume I (Loucks, Bauchner, Crandall, Eiseman & Schmidt, 1982a) includes the complete description of our various analytic procedures.

CHAPTER III: COMPLEMENTARY COMPONENTS

As just reviewed, the principal study collected survey-analytic data for the main actors in the implementation process. This component was rounded out by two others: a study of federal and state program history, structures and operations, and a field study of a sub-sample of survey sites.

A Study of Federal and State Dissemination and School Improvement Activities

The study began its examination of federal dissemination activities by producing an overview of all programs funded by the U.S. Department of Education (then the Division of Education within the Department of Health, Education and Welfare) that had a dissemination component. We located 45 such programs and developed a profile of each (Hellmer, Harris & Thompson, 1981). We then selected 15 programs -- 9 sponsored by the then Office of Education and 6 by the National Institute of Education -- that ranged widely in their approaches to dissemination and served a variety of student populations. A set of field researchers conducted loosely structured interviews with federal program personnel and examined relevant documents for the programs, which were: (funded by the U.S. Office of Education) ESEA Title III/IV-C, the Joint Dissemination Review Panel (JDRP), the National Diffusion Network (NDN), Title I, the Follow Through Program's Resource Centers, the Handicapped Children's Early Education Program (HCEEP) Outreach Centers, the Market Linkage Project created by the Bureau for the Education of the Handicapped (BEH), Title VII's National Bilingual Network, and ESEA Title II's Basic Skills Improvement Program; and (funded by the National Institute of Education) the Educational Resources Information Center (ERIC), the State Capacity Building Program, the Urban Sites/Documentation and Technical Assistance Program, the Teachers' Center Exchange, the Research and Development Utilization Program (RDU), and the Research and Development Exchange (RDX).

A second set of field researchers interviewed state department of education personnel in the ten sample states; they too reviewed relevant documents. In both cases, field researchers interviewed respondents about the context, program operations, policies, goals and assumptions of their work. Interviews were loosely structured, with field researchers using a topic guide to focus the conversation. Below are the general categories used in the topic guides:

- Goals;
- Program or state department history;
- Organizational structure and environment;
- Federal-state relationships;
- Sources of practices disseminated;
- Selection of practices for dissemination;

- Vehicles for disseminating practices;
- Support systems provided to or available to the dissemination process;
- Relationship to the implementaton at the local level;
- Relationships with other dissemination activities;
- Evaluation and research; and
- Summary of core assumptions.

Based on the interviews, 15 federal program profiles were completed along with a description of the relationship between state and federal efforts in the area of dissemination. For selected federal programs as well as the ten states, informal case studies which consolidated interviewers' notes and reflections were constructed as an aid to analysis.

Field Study of Local Implementation

The overall study had, from the outset, been designed to employ multiple methods of data collection and analysis in order to "triangulate" on phenomena of primary interest. [See Huberman and Crandall (1982) for an extended discussion of aspects of our mixed methodology approach.] The field study was a major effort, mobilizing a four-person research staff for 18 months. The intent was to complement the survey and, where possible, to compensate for the shortcomings of survey methodology (which included pre-designed instrumentation, one "snapshot" pass at a site and its informants, difficulties in unraveling over-time processes, and inadequacy in handling unanticipated or equivocal findings). Field studies are also capable of identifying typical patterns of outcome ("telling the story"), of pinning down local determinants of outcomes, of validating or at least lending plausibility to survey-analytic findings, and of documenting and illustrating relationships emerging from survey analyses. This methodology has two further merits: it can capture the everyday properties of local sites and follow how they change and are changed by the process of implementing new practices; and it can get underneath the "official," non-controversial and socially desirable rendition sometimes given by survey respondents, dredging up the more latent issues, agendas, conflicts and outcomes inevitably present in such settings.

The field study sample comprised 12 sites drawn from the survey sample and varying along six dimensions: program sponsorship, geographic region, setting (e.g., rural, small city), year of initial implementation, current status (ongoing, expanding, dwindling), program type and program content. For program sponsorship, only two programs were studied, NDN and Title IV-C, specifically to enable cross-program comparisons between locally generated (IV-C) and externally introduced (NDN) innovations. Within these two programs, field study sample characteristics matched survey sample characteristics. Sample characteristics are shown on Table 4.

Table 4: Characteristics of Field Study Sample

SITE	PROGRAM SPONSORSHIP	U.S. REGION	SETTING	YEAR BEGAN PROJECT	STATUS (as initially assessed)	PROGRAM TYPE	PROGRAM NAME OR INITIALS[x]	PROGRAM CONTENT
Astoria	NDN	Southeast	Small City	1978	Expanding	Add-on	EPSF	Early Childhood
Banestown	NDN	Southeast	Rural	1979	Expanding	Pull-out	Catch-Up	Reading/Math
Burton	NDN	Midwest	Suburban	1979	Expanding	Add-on	IPLE	Law and government
Calston	NDN	Midwest	Center City	1978	Ongoing	Drop-in	Matteson 4D	Reading
Carson	IV-C	Plains	Rural	1977	Expanding	Add-on	IPA	Individualized educational planning*
Dun Hollow	IV-C	Northeast	Urban sprawl	1977	Dwindling	Add-on	Eskimo Studies	Social studies*
Lido	NDN	Northeast	Rural	1976	Dwindling	Add-on	KARE	Environment
Masepa	NDN	Plains	Rural	1978	Ongoing	Drop-in	ECRI	Language Arts*
Perry-Parkdale	NDN	Midwest	Suburban	1977	Ongoing	Sub-system	EBCE	Career ecucation
Plummet	IV-C	Southwest	Center city	1976	Ongoing	Sub-system	Bentley Center	Alternative school
Proville	IV-C	Southwest	Urban sprawl	1977	Dwindling	Pull-out	CEP	Vocational education
Tindale	IV-C	Midwest	Uban sprawl	1976	Ongoing	Drop-in	Tindale Reading Model	Reading

x IV-C program names are pseudonyms to avoid identifying specific sites.

* Program is used in this site with a comprehensive sample of learners, rather that with low-achieving or marginal populations.

The conceptual model underlying the field research roughly paralleled that of the survey, although it was directed more at latent issues and conflicts characterizing the everyday life of the school as well as the transformations undergone by the innovations as teachers other than the initial cadre took them up. The 34 research questions forming the basis for field study data collection generally overlapped and mapped well onto the main foci of the survey. Field researchers visited local sites 3 to 7 times for a total of 4 1/2 to 11 days. Across all 12 sites, data were collected through 440 formal and informal interviews, 75 observations and review of 259 documents. Raw survey data were also fed into later fieldwork.

The battery of data collection devices corresponds roughly to those used in classical field ethnographies, but the short, interrupted time on site made this field study into another species, one closer to investigative reporting and investigative social research. The distinctive quality of these latter approaches is their "recycling" or "progressive focusing" property; field researchers use multiple interviews and observations to establish, flesh out and verify a plausible version of local events that gets progressively revised and cross-checked.

Field study data analysis proceeded from transcribed field notes to individual case reports then on to cross-site analyses. A variety of conventional and experimental techniques for formatting, reducing, displaying and analyzing sets of qualitative data -- including causal and cluster analyses -- was trained on the field study data set. Volume IV presents these methods in considerable detail.

CHAPTER IV: SUMMARY OF FINDINGS AND IMPLICATIONS OF THE STUDY'S FEDERAL AND STATE COMPONENTS

In this chapter, we summarize the findings for objectives 1 through 3. We begin by describing what we learned about the assumptions and operations of federal dissemination programs, and about state/federal relationships. We then summarize major policy and action implications of these learnings.

Study Objective 1: The Assumptions Underlying Current and Alternative Dissemination Strategies

As noted earlier, the study profiled 45 programs in the U.S. Department of Education that involved dissemination, and examined 15 of these in depth. It was clear at the onset that, while some of the programs had aspects in common, there were wide differences in the assumptions they held about schools, people and change. These are the focus of Study Objective 1. By "assumption" we mean a proposition that would have to be true if a program were to work. Programs plan their strategies with these assumptions in mind (although they are often not explicit), and of course they select strategies with success as the goal.

We find it most useful to compare and contrast the assumptions underlying programs by analyzing the assumptions about different factors in the school improvement process. Thus, in Volume I, we talked about the four strategies we examined at the local level by describing the strategies' assumptions about policy, practices, people (teachers, building and district administrators, external assisters), context and implementation strategy. Here we use this same breakdown to summarize the assumptions we discovered across federal dissemination activities.

Policies

Assumptions about policy and policymaking do not seem to differ among dissemination programs. Each assumes that policy has an influence on practice, that the decisions that are made at the government level and the strategies developed as a result, will influence both what goes on in schools and what results for students. However, the levels at which policy decisions are made do differ among the strategies. For example, although the Title IV-C and the State Capacity Building Programs begin with policies made at the federal level, the policies are quite broad and allow for state interpretation and further elaboration. The assumption here is that the state is "closer" to the school district, can understand needs better, and so is in a better position to make policy than the federal government. Likewise, programs such as the R&D Exchange assume that information disseminated to state departments will reach people in schools. Other dissemination programs, including the National Diffusion Network, Teachers' Centers Exchange and National Bilingual Network, assume that the use of national networks (largely comprised of entities with no regulatory authority over schools) will better serve the needs of schools to improve.

Practices

Federal dissemination programs diverge quite dramatically in their assumptions about new practices. Many, including the Basic Skills Improvement Program, R&D Utilization Program, and the National Diffusion Network, assume that practices developed in one location can be identified, evaluated objectively, extracted from their contexts, replicated in other settings, and result in outcomes similar to those attained at the development sites. In contrast, Title IV-C Local Development Grants and the Urban Sites/ Documentation and Technical Assistance Programs assume that only a practice developed at a particular site can adequately meet the unique needs of the site and have the desired outcomes.

Most programs assume that practices developed by school people -- those actively involved in the education of children -- are more apt to be acceptable and useful to, and more readily implemented by, other practitioners. However, some programs, including the R&D Exchange and the R&D Utilization Program, assume that the best practices result from research findings, with development done by experts in universities, regional laboratories, or other R&D organizations.

People

Teachers. All federal dissemination programs assume that teachers are motivated to improve their classroom practice and that, where improvement is needed, teachers need external resources to make it happen. And they all assume that teachers can change their teaching behaviors.

The programs differ mainly in assumptions about teacher skills needed to improve. Several programs, including the National Diffusion Network, Handicapped Children's Early Education Program and R&D Utilization Program, assume teachers need training to develop skill in using new practices (i.e., training in addition to new materials). The Marketing Programs of the Bureau of Education for the Handicapped and Basic Skills Program, and ERIC, assume that materials or information are enough, that teachers will use them and do so effectively without training. Other programs, such as Title IV-C Local Development Grants, go further to assume that teachers also have development capabilities, or at least can contribute to the development of new practices. This is an interesting range of assumptions about the resources and abilities teachers bring to an improvement effort.

Building Administrators and Central Office Personnel. Federal dissemination programs do not make specific assumptions about people in leadership roles -- either at the building or district level. They do, however, assume certain motivations and capabilities of schools. Since schools themselves cannot be said to be motivated or capable of anything, we can infer that it is the people within them that the assumptions refer to.

All dissemination programs assume that school people are motivated to improve, and that they have the abilities to select or develop new practices towards that end. They also have the capabilities to implement those practices, with the help of some external resources. The assumptions imply that school leaders either have these abilities themselves, or can bring together people who do and motivate them to devise and implement new practices.

External Assisters. Federal dissemination programs differ dramatically in their assumptions about external assistance. The National Diffusion Network and programs that feed exemplary practices into the NDN (e.g., Follow Through, Basic Skills Improvement Program, Handicapped Children's Early Education Program) assume that in-person delivery of new practices is a key ingredient for success. These programs further assume that the people who developed the practices are the best ones to deliver the training and technical assistance. They also assume a need for a network of assisters focused, not on a single practice, but on making schools in a given area aware of the wide variety of practices available for them to implement. This "generalist" role is also assumed to be important by such programs as the R&D Utilization Program, which has an external agency working with a school problem-solving team, and the Teachers' Center Exchange, which encourages and builds networks for teachers' center people to work with and for each other on common problems.

Other federal programs assume no need for external assistance. Some, such as ERIC, assume that dissemination will occur naturally; when school people feel a need, they will seek out information, new ideas, and practices. Others, such as the Project Information Packages, assume that if packages are carefully crafted to incorporate clear instructions about how to implement a new practice, then no in-person assistance is needed from external sources.

Context

As noted earlier, federal dissemination programs assume that some schools are motivated to improve, and have the capabilities to use information and new practices. In addition, several programs (e.g., the Marketing Programs for the Bureau of Education for the Handicapped and for Basic Skills, and ERIC) assume that schools and/or districts have communication procedures such that teachers and others are kept informed about materials that have been purchased for their use, or about information that is available to them.

Other programs, notably the Urban Sites/Documentation and Technical Assistance and the R&D Utilization Program, assume that schools are places where rational problem-solving can occur, and that teams of school staff and sometimes community people can make improvement-oriented decisions and successfully implement them.

Implementation Process

Many programs, including the National Diffusion Network, Follow Through, and the Handicapped Children's Early Education Program, assume that new practices can be implemented, given help from developers in the form of training and technical assistance. Other programs, such as the R&D Utilization Program, assume implementation requires not only external help, but also an internal problem-solving process to engage school people in their own improvement. Other programs, notably the two marketing programs and Title IV-C Development Grants, assume implementation will take place once commercial distribution or local development, both pre-implementation steps, occur. None of these programs makes assumptions about specific processes for implementation, nor do the Teachers' Centers or the R&D Exchanges, which operate at a distance from the local school, the focal point for implementation.

Study Objective 2: The Structure and Operations of Major Dissemination Activities Conducted by Various US Department of Education Programs

Programs in the Department of Education clearly differ in the assumptions that underlie their dissemination activities. But what are these activities? How are they structured? How do they operate? And finally, how are they coordinated?

The study began with USOE's answer to the last question: dissemination activities are not coordinated. At the time the study was funded, it could be said legitimately if uncharitably that, in its endeavor to improve schooling by spreading new knowledge, new products, and new practices, the federal government as a whole literally did not know what it was doing. Nearly every federal education program disseminated something to somebody for some purpose, and many programs had been at it for some time. Each program's managers knew its own activities and knew about the activities supported by a handful of other programs. Yet nobody knew what all these programs were doing, how they were doing it, or what had been learned from their experience. That is, no unit representing the government's or the Department's interests -- as contrasted with the interests of individual programs - had an integrative grasp of activities in the dissemination sphere.

This situation was symptomatic neither of bureaucratic ineptitude nor of bureaucratic indifference. It was simply the result of organizing the government around priority national needs or goals and the programs designed to address them -- not around functions or types of activity. Further, while complaints about a lack of coordination were widely muttered, it was not so clear that tight coordination would be an improvement.

As we note in the next section, several state officials pointed out to us that this situation allowed state education agencies the autonomy to coordinate resources in their own way. Furthermore, as Turnbull (1981) noted, local school people were not particularly confused or overloaded by the various federal dissemination networks' offerings, but were able to scan them and admit only those resources and assistance that would meet their schools' needs.

However, the government did express a need for good, clear information about dissemination activities, as a basis for thoughtful, selective coordination which took into account the costs as well as the benefits of such orchestration. To fill this need, The NETWORK examined all programs in the Department and located 45 that had some form of dissemination activity targeted at improving schools (Hellmer, Harris & Thompson, 1981).

Several statements may be made about these 45 programs. First, most had specific substantive goals; dissemination was just one of their activities. Others, such as ERIC, the R&D Exchange, and the National Diffusion Network, were generalized dissemination networks for a broad range of programs, purposes, materials, and audiences. These generalized systems, however, can be viewed with the others in the array of potential approaches for program dissemination. In fact, many programs, including the Handicapped Children's Early Education Program, Follow Through and the Basic Skills Improvement Program, chose the NDN as a dissemination vehicle for projects they funded.

A second point is that, as programs developed in their "dissemination maturity," they seemed to choose -- with or without conscious deliberation -- among three broad options for dissemination:

- reliance on "natural" channels of communication which existed independently of government (e.g., "invisible colleges" of researchers, professional associations, commercial publishers),
- strengthening of communication through such channels (e.g., underwriting the costs of special meetings among researchers in selected fields, granting funds to professional associations to distribute targeted publications, making better connections between product developers and appropriate commercial publishers), or
- use of existing mechanisms already sponsored by the government (e.g., the NIE-sponsored regional laboratories, the Educational Resources Information Center, the NDN) or creation of new systems (e.g., special purpose centers to interpret and provide guidance in implementing a particular mandate).

Actually, most programs combined these approaches or employed one that fell somewhere between these on a continuum of possibilities. Some programs appeared to have made their choices after entertaining the full range of approaches and weighing the likely effectiveness and costs of each for their particular purposes. Others appeared to have settled on an approach without envisaging alternatives.

Programs disseminated different things. Among those were:

Model Programs

Fairly comprehensive sets of practices, modes of organization, and materials which had been deemed effective, exemplary, or otherwise worthy of imitation.

Promising Practices

Less comprehensive new practices thought interesting or potentially more widely useful, but for which no "scientific" evidence of effectiveness was claimed.

Curriculum Materials

Materials for use by teachers in classroom instruction. No particular mode of instruction or educational practice was demanded.

Research and Development Products

Materials or practices developed on a scientific or theoretical basis rather than through practical experience and alone. Such products were generally developed in universities, laboratories, or institutes by professional program developers rather than by teachers.

Research Results

Findings from basic or applied research, sometimes offering principles to guide practice, but distinct from ready-to-use packages for practitioners.

Descriptive Statistics

Data about the education field thought to be useful in planning or managing educational programs.

New Developments

Information about current events and other happenings in a field. It frequently appeared in newsletters or in the lighter sections of professional journals.

Programs varied on the scope of their dissemination activity. They ranged from .25 to 50 person-years of staff time devoted to dissemination, and from $9,000 to $12 million in sets of contracts and grants devoted wholly or in part to dissemination and related activity. The kinds of activities pursued fit loosely in the "levels" of dissemination formulated by USOE's Dissemination Analysis Group in 1977:

Level 1: Spread -- The one-way casting out of knowledge in all its forms: information, products, ideas, and materials.

Level 2: Exchange -- The two-way or multi-way flow of information products, ideas and materials as to needs, problems, and potential solutions.

Level 3: Choice -- The facilitation of rational consideration and selection among those ideas, materials, outcomes of research and development, effective educational practices and other knowledge that can be used for the improvement of education.

Level 4: Implementation -- The facilitation of adoption, installation and the ongoing utilization of improvements.

Quality control was another source of variation between programs. Probably the single best-known and most widely used federal mechanism for quality control is the Joint Dissemination Review Panel (JDRP), which reviews applicants' evidence of effectiveness according to canons of procedure familiar to if not universally accepted among members of the educational evaluation community. A number of programs entrusted quality control to the JDRP, others deferred to the government project officer for each program. Increasingly, however, programs seemed to be according dissemination a higher priority, and this was reflected in the rising number of programs using the JDRP as well as in other screening mechanisms suited to particular needs, or even in the reliance on project officer judgment.

Two other variables discriminated between federal dissemination programs. First, the use of external facilitators to "carry" new practices to local schools was an important feature of programs such as the NDN (and those programs that fed into it) and the R&D Utilization Program. As we note later in our discussion of implementation at the local level, programs without this feature fall short of successful classroom use. Second, programs differed on how they supported local schools to adopt their "disseminates." Some merely made schools aware of them through conferences and newsletters (e.g., National Bilingual Network); others gave schools "adoption grants" to select and implement new practices (e.g. one part of ESEA Title IV-C); still others funded external facilitators to make schools aware of new practices and provide training and technical assistance (e.g., the NDN).

The structure and operations of federal programs supporting dissemination for school improvement were widely diverse when the study examined their activities. As noted, especially in Volume V, this diversity has diminished, given the consolidation of many of the programs in Chapter 2 of ECIA. However, the learnings derived from the examination of the activities provide insights into how the federal government might continue its role in encouraging school improvement through careful coordination of its (still large) variety of dissemination efforts.

Study Objective 3: The Relationship between Federal Dissemination Efforts and State Dissemination Activities

What relationship do these federal programs have to the dissemination activities engaged in by the states? Our sample of ten states and their education agencies allowed us to ask this question in widely varying settings. In some states, federal programs very nearly dictated the organization and activities of a large number of SEA personnel; in others, SEA business went on as usual and was barely influenced by federal dissemination programs. Here we summarize the findings in Volume VII, which illuminate the federal-state configuration.

Our first learning is that the federal government's initiatives in the area of dissemination do not have much to do with what happens in individual states. Dissemination programs cause little local policy or program change. They do, however, enhance state initiatives that may not have been possible without federal support. The seed is created in the states, nurtured, as it were, by federal program resources.

But such a seed is not found in all states. When we examined how each of our ten states worked in the area of school improvement, and in particular, with resources from federal dissemination programs, we found two distinct modes. Some SEAs were preoccupied with carrying out basic functions in a standardized way. Maintaining stable routines was the overriding organizational agenda. These we refer to as maintenance agencies. Other SEAs focused more directly on substantive goals, in this case helping their local schools innovate. Leaders in these SEAs had disrupted routines and rearranged relationships within the agency in order to achieve such school improvement goals. These we refer to as development agencies. We also found a third type of agency -- those in transition between maintenance and development.

In the SEAs studied, the maintenance pattern appeared to be associated with low resource levels, a strong tradition of local autonomy, a relatively homogeneous political environment, and leaders whose managerial values and styles were consistent with these conditions. Most of these SEAs organized to accommodate the administrative requirements of federal programs. They were generally structured like picket fences, with the strongest lines of force following the money from federal sources to local recipients. Offices were added incrementally as new federal programs were created; limited coordination between programs occured -- in that sense, mirroring well the federal level. Lines of communication were stronger along rather than across pickets.

Development SEAs had managed to cut across the picket fences, consolidating federal resources where legally possible, and launching comprehensive school improvement programs. These programs were often in response to broad dissatisfactions with the state's education system, stimulating policy initiatives by the legislature, board, governor, or electorate. Development SEAs were found where the state's tradition of localism was weak, resources were relatively plentiful at the state level, and SEA leadership had a mandate to deal with the conditions that aroused the dissatisfaction. Our transitional states were just that: the mandate was new, and a reorganization was beginning to cut across previous "picket fence" structures.

Given these distinctions, how did states define their roles in dissemination for school improvement? Maintenance states often minimized their definition of dissemination, leaving state coordinators of federal programs to "spread" the word in their own ways. Some development states shied away from dissemination, using some of the federal resources to launch major school improvement progams that either recommended or mandated processes for schools to engage in renewal. In both of these cases, "generic" federal dissemination programs, such as the National Diffusion Network and Teachers' Centers, often operated entirely independent of the SEA. Other development states purposely designed dissemination systems not only to combine the variety of federal dissemination initiatives, but also to include state-identified practices and materials.

We thereby saw states whose school improvement thrusts were initiated internally, and where initiated, were nurtured by federal resources. Whether that nurturing resulted in a comprehensive, full-blown program for school improvement, or an uncoordinated, narrowly focused spurt of activity, depended on the organizational structure and leadership of the SEA. These in turn depended on contextual characteristics such as the degree of localism and the extent of available resources. Thus, the federal-state relationship showed great state-by-state variation, from tight federal-state coordination along single program strands that were not themselves coordinated, to comprehensive, well-coordinated state efforts where federal programs largely lost their distinctiveness.

Implications for Policy and Practice

What can we learn from our examination of the assumptions and operations of federal and state dissemination activities? In particular, what do we know that can inform the federal role in school improvement, especially at a time when that role is both diminishing and contested?

First, given the findings reported later in this volume to the effect that federal strategies have had a significant positive influence on the nation's schools, we believe that there is a role for the government. It is to:

- support those activities that are generic in function (so as not to counter the specific needs of any locality);
- make the best use of resources by eliminating excessive duplication (such as an independent dissemination system within each state) and by providing frameworks which facilitate interstate exchanges of information, practices and people;
- underscore by actions and not just words the need for high quality programs and practices in our nation's schools; and yet
- retain the conviction that local choice is one key to the success of the educational enterprise, since those who are the closest to it -- teachers, parents, local administrators -- are the primary ingredients in school improvement.

A federal program that does all of these, and so we believe is an example of an appropriate government activity, is the National Diffusion Network. In the study we were able to make a penetrating examination of the NDN, since it was not only one of the 15 federal programs we examined in-depth, but also one of the 4 we studied at the classroom level. We also conducted a special network analysis of the NDN, surveying all its participants (contractors, federal program staff, and technical assistance staff), to determine its important features as a service delivery system.[2] We found that these included:

- a high degree of consensus on the system's priorities between the funders and the fundees;
- the evolution of policy and procedures through informal collaboration between federal staff and funded projects; and
- responsiveness to the needs of local schools through a wide offering of practices developed by and for school people.

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[2] Volume VIII (Taylor, 1982) reports this analysis.

These features of the NDN appear to satisfy those who support a limited federal role, as well as those who prefer a more extensive one.

But the NDN is not the only kind of federal program that does both, and we believe that all such programs, or program components, need to have a common parent program (or office) -- one whose sole responsibility is to facilitate and orchestrate dissemination for school improvement. Such an office would have the following features:

- staff who are knowledgeable about different "disseminates," dissemination vehicles, and quality control mechanisms;
- linkage with generic dissemination programs, such as the National Diffusion Network, ERIC, Market-Linkage, and the R&D Exchange;
- responsibility for helping each federal program choose a dissemination strategy that incorporates identification of the most appropriate disseminates and quality control mechanisms, and funnels disseminates through one or more of the generic dissemination programs; and
- direct linkages with a dissemination coordinator in each state department, whose responsibility is to know what is available to local schools and how it may be accessed.

Program offices could still have the responsibility to identify exemplary practices, products, and information. State departments of education could have their own structures to fund schools to adopt new practices, or to otherwise use the information or expertise offered by the federal government. Local schools could then discover in a much less energy-intensive fashion the opportunities offered to them in support of improvement, and could choose whether and how to avail themselves of the fruits of federal dissemination efforts.

CHAPTER V: SUMMARY OF FINDINGS AND IMPLICATIONS OF THE STUDY'S LOCAL SITE COMPONENTS

Study Objectives 5 and 6: The Conditions of Successful Implementation of Exemplary Practices and the Implications for Policy and Action

Which factors determine whether projects disseminated under US Department of Education auspices will be adopted in local school districts?[3] The study provides two kinds of interlocking answers. At the descriptive level, the basic characteristics of the sample -- the features of school districts, schools and of school personnel -- tell us a good deal about the universe of schools adopting new products and practices from one of the four programs studied. At a more explanatory level, we can report on the factors which most significantly drive and constrain implementation.

For objectives 5 and 6, we summarize our findings and draw implications framed by three questions:

- What are characteristics of schools, districts, and people who are involved in adoption of new practices supported by the four programs studied?
- What are the necessary and sufficient conditions for successful implementation?
- How are successful outcomes achieved?

Characteristics of Adopting Schools, Districts and People: Findings

New practices get adopted across the country in school districts ranging from 63 pupils to 128,634 and in school buildings varying from 18 to over 3,092 pupils. The modal school district tends to be small and the adopting school a large one. Our sample is essentially representative of schools across the country, comprised of 57% elementary, 13% middle/junior high, 26% senior high, and 5% other (e.g., combined junior-senior highs). If anything, secondary schools are slightly over-represented, given their distribution nationally. While most schools are operating in a relatively stable political and fiscal environment, we estimated that about a quarter of the sample was living through moderate to heavy turbulence as a result of projected or ongoing budget cuts.

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[3] The data reported in this section come primarily from the survey and field study. Unless noted otherwise, we shall be reviewing the principal findings that are consonant between these two sources. Within those findings, we shall be concentrating on ones that make a difference, i.e., that showed clear and policy relevant relationships. We also draw on field study data to illustrate and document those relationships.

Survey findings project an image of largely cohesive and tolerant school staffs, working in more "tightly" than "loosely" run buildings. The staffs viewed building administrators positively but did not see them as especially forceful leaders. School staff also described themselves as more innovative than surrounding schools, both in the past and present. The field study, however, found on closer inspection a more conventional universe of adopting school districts than the survey (self-report) data, and, within these, a relatively traditional group of adopting schools. This appears, on the face of it, to be heartening news in that new practices disseminated with federal support appear to be reaching places that were previously more indifferent, skeptical or simply unaware of such opportunities.

We found many factors that determined adoption of new practices. To review them briefly:

Attitudes of state departments of education toward dissemination and federal efforts. Some states, like Arizona, do not like participating in federal dissemination or other efforts; nor do they view the dissemination of practices as a viable function for the state department. Other state departments, for example, Maine, see dissemination as simply sharing information with schools; these states leave practice transfer to the federal government. A third group of states sees each program as providing its own version of dissemination. Still a fourth group of state departments (e.g., Illinois, Michigan) sees its role as providing an integrated state-administered dissemination network through which all state and federally validated practices flow to local schools. What we found in local schools depended to a large degree upon the position the state department took on these issues.

Role of central office administrators. In both field study and survey findings, the early advocates of these new practices are primarily central office administrators, often program coordinators or assistant superintendents for curriculum and instruction, who keep their eyes open for promising practices outside the district or energetically promote a local product. In many cases, these prime innovation advocates also oversee initial implementation, reaching directly into local schools and often leaving building administrators to play a secondary role. School principals in these instances usually get more active later on. Earlier research (e.g., Berman and McLaughlin, 1975, 1978; Bentzen, 1974) has tended either to play up the initiating role of the principal or to portray central office personnel in a more passive, "endorsing" stance. The counteracting evidence here is strong that central office personnel are active scanners -- perhaps the only active scanners in the district -- and, when they fasten on a promising practice, are almost certain to get it adopted locally.

Motives and attitudes of teachers/users. Since survey data are prone to respondent bias on questions of personal motives, we rely more on field study findings here. They indicate that the energetic stance of central office administrators puts both teachers and principals in a more passive role -- as "targets" or "consumers" of the new practice. This does not imply that teachers are necessarily being held down, although we did not explicitly explore whether teachers wished for more encouragement or latitude to initiate. The structure and role responsibilities of the typical school such as those studied do lead to a division of labor, which is generally accepted as "the way it is." Of course, given this reality, the likelihood of innovation depends largely on central office administrators actions. For 60% of the users, the prime motive for adoption was administrative pressure, varying from enthusiastic encouragement to raw power, and exerted either directly from the central office (in smaller districts) or via the building principal (in larger districts). Typical comments were "I didn't know I had a choice to refuse," or "The assistant superintendent really wanted it in." Note that this was only one of several motives and that, on the whole, users were either neutral or favorable to the practice at the outset. There was little local opposition. When resistance ran high, there was a bargaining process -- largely implicit -- which usually ended with users being given some latitude in the ways they could execute the project. (See also Crandall (1981) on these unspoken covenants.)

The field study also shows that adopting the innovation as a solution to problems was not a prime motive for users. The main incentive was that the new practice would add resources, enrich the curriculum, or outperform existing practices. Another cluster of incentives turned around professional growth. Implementation was seen as a vehicle for becoming a stronger, more resourceful professional, almost independent of the merits of the new practice. Such incentives are also highlighted in the Rand study (Berman & McLaughlin, 1975).

Incentives were, for about half the sample, tied up with career plans. For these people, the innovation was a vehicle for moving in, moving up, securing their position or moving away. Their attitude was neither cynical nor Machiavellian; they were simply looking out for themselves and capitalizing on opportunities crossing their path.

For most users, the innovation was important; it loomed large in their daily life. In the initial size-up of the practice, users (teachers) felt it was likely to be complex, hard to do, somewhat unclear and flexible -- sometimes too flexible. Administrators, on the other hand, tended to see the same project as simpler, clearer and more manageable, and spent time reassuring the first generation of users. (It is worth noting that this reassurance by administrators was not particulary helpful in neutralizing users' concerns.)

Initial attitudes were also a function of goodness of personal fit for prospective users: how the practice "felt" initially, how it connected with congenial ways of working with pupils, how familiar it was ("under my belt . . . in my routine") and how well it corresponded to personal norms and values. Fit was fair to good overall, but a good quarter of both the survey and field study sample complained of a poor fit.

The image emerging here is a more complex and untidy one than previous studies have projected. Users are backing, not running, into implementation and are being prodded by administrators. At the same time, *they are game*; the practices are not perfect fits and look hard to get on top of, but they also look good and worth a trial. There may also be some gains farther down the line -- an increased instructional repertoire and possibly a promotion or desirable transfer.

Motives and attitudes of administrators. Administrators focused on the potential of the innovation to *improve classroom instruction* and *school-wide management*. Here again, it was noteworthy that problem-solving via the innovation was *not* a strong item. An important incentive was that of *gaining access to funds* through adoption -- funds that provided new materials, free training, recruitment of aides and new supervisory posts.

For roughly half the building principals and central office staff members in the field study, adopting the innovation meshed well with their *career plans*; adoption helped notably to secure their present status or to set up a promotion. We should note here that too many career-driven incentives fouled up both adoption and implementation, but too few was equally a handicap. Career incentives galvanized administrators and caused them to move more quickly, to bypass regulations and to mobilize in-service and procurement funds for the project.

In sizing up the new practice, administrators were more favorable than users, and, as noted, thought it would be manageable. Depending on the district, they also saw varying amounts of *anticipated organizational change*. Some was trivial (e.g., transportation), some momentous (e.g., creating a new institution). Sites also varied on *goodness of organizational fit*, the demandingness or stress ratio of the proposed project. Administrators tended to overweight potential benefits and underweight potential drawbacks. There were, in effect, clear traces of a Scarlett O'Hara phenomenon: the projects looked good, adoption and funding were at hand -- the problems could be handled later on.

Here again, the composite image is more dense than earlier studies have shown. By contrast with the Rand study, we see that central office and building administrators have multiple motives; they are not either opportunistic or task-centered but are often both. Nor does opportunism necessarily lead to cynical implementation or looting; in fact, at the adoption stage, career motives lend energy and act to mobilize *existing* resources. Finally, problem-solving is a rarer incentive for adoption than recent or earlier studies of comparable samples would have us believe, nor is its *absence*, as discussed more fully below, a harbinger of indifferent follow-through.

Characteristics of the innovation. Survey results show respondents reporting widely ranging perceptions of purpose, pedagogical approach, complexity, size, prescriptiveness, concreteness of claimed benefits, and implementation requirements. There was no strong evidence that any one of these traits, by itself, systematically affected the implementation of the new practice. Field study findings show site respondents claiming the requirements for successful implementation to be heavier than found in the survey. In particular, users at over half the field sites *anticipated high classroom change*: different materials, instructional sequences, curricula and evaluation formats, and the loss of familiar props such as workbooks and teachers' manuals.

There was a significant relationship between the *amount of required change* from prior practice. Simply put, the more that was attempted, the more that was attained. In our exploration of causal relationships based on the survey data (reported fully in Volume III), clarity emerged only after we separated the sample on this dimension. This underscored our initial belief, following Downs and Mohr (1976), that it is only the innovation-user pair that is meaningful. We saw many examples of the same innovation being a major change for some teachers and a minor one for others, even within the same building. Thus, while an innovation's characteristics *per se* have little import, when its operational demands begin to be experienced by a teacher, the import for implementation assistance as well as for impact, is considerable.

Clearly, features of the innovation are not predicting implementation outcomes by themselves but only in interaction with contextual and institutional factors. For example, field study data suggest that the *choice of a larger, more complex innovation* is determined chiefly by environmental pressure on the central office, by demographic shifts in the population of pupils and by the presence of a sizeable (under-achieving, alienated) pupil population. These factors heighten central office administrators' commitment to change, notably when the district has an active history of adopting new practices.

Characteristics of the programs. Each of the four programs studied has a distinctive mix of project ingredients. NDN projects are, overall, larger and more complex, and exhibit relatively concrete benefits, according to researcher judgments. NDN Title I innovations are smaller and more prescriptive. BEH products are small-scale and straightforward, with few implementation requirements, concrete claims and prescriptions. State-administered projects tend to be of low complexity, with less concretely defined claims of success. Finally, Title IV-C development efforts are large and demanding, and have few concrete benefit claims. As noted earlier, these features, by themselves, do not seem to have determined implementation outcomes, but rather interact with the ways these new practices are introduced and negotiated through the local setting.

Delivery of BEH products is problematic. Researchers were barely able to constitute a BEH sample; a large number of products had been purchased, but we found few of these in use. The most plausible explanation was that no provision was made for in-person delivery, e.g., by a developer of the product, by a state-level staff, or by a "disseminator," all of whom we called "external facilitators." Such facilitators played an important, sometimes decisive, role in the other programs in securing local implementation of the new practice. This is consonant with comparable empirical studies (Emrick & Peterson, 1978).

Unlike the Rand study, we found that federally supported, "seed money" projects, such as those created under the Title IV-C program, were widely implemented (see below). But the conventional view of the IV-C program as a grass-roots, home-grown, bottom-up mode of invention and implementation, needs some refinement. At the majority of IV-C sites in the field study sample, the projects were developed outside adopting schools, sometimes outside the school district (e.g., by a regional agency). From the teacher's and building principal's point of view, these projects were as "external" and "top-down" as the NDN projects.

Thus, the oft-cited distinction between internally and externally developed practices may be a red herring. The romantic notion of a small group of creative teachers spontaneously banding together to create some new and exciting curriculum or instructional methodology simply does not square with the typical scenario. With the exception of small mini-grant programs designed to reward individual teachers for initiative and to foster their personal development, most efforts that achieve project status, regardless of their funding source, require administrative support, grant applications, management structures, etc. that move them inevitably out of the cozy nest of the classroom. The good news is that they can find other, often cozier nests. A substantial number of such endeavors are successfully developed by local educators, can withstand external scrutiny and quality control review, and can, if accompanied by their original (local) developers or credible surrogates, move readily into a multitude of new settings where they can be successfully and fruitfully implemented. Indeed, at its inception in 1974, virtually all of the practices in the NDN were the result of such local development efforts, primarily supported by ESEA Title III (the predecessor to Title IV-C). The state of practice has evolved to the point where the "not-invented-here" stigma can be neutralized.

The role of external and internal facilitators in securing adoption. Externally developed, high-quality products introduced to schools via the central office by credible program developers or liaison agents seem to have the best chance for adoption along with one other formula: locally developed (at the school or school district level), high-quality products in whose development central office administrators have invested time and effort. Because these assistance-providing roles are so decisive, we urgently need a far better picture of who these people are and what they do than previous research has provided. Many analysts (e.g., Hood & Cates, 1978) have bemoaned the global and monolithic image of "linkers" and "field agents" that researchers have provided to state and federal agencies connected with the dissemination of new educational practices. Thus, one of the key objectives of this study was to describe in greater detail the characteristics, roles and effectiveness of these "facilitators."

These details are furnished in Volume II, Portraits of the Changes, the Players, and the Context. Here we summarize them in the context of program adoption. We defined both internal and external facilitators as people (a) whose actions are directed at improvement of individual or institutional performance, (b) who provide information and expertise, oftentimes "packaged" into instructional products, and (c) who occupy a position spanning institutional boundaries, linking knowledge resources developed in one setting with needs and opportunities which arise in another. Facilitators external to the adopting school district tend to be highly trained, well-read, professionally active, and either in the 25-30 or 40-60 age range. Most had moved to their current job from another in the same organization. Although the facilitator post was well-institutionalized, it was seldom a full-time slot. Most respondents had other roles -- as administrators, managers or supervisors. Roughly half serviced the entire country; slightly less than half serviced a particular state or region.

External facilitators tended to favor -- or their roles required - a particular strategy. Some 30% used a "touch and go" approach -- making local districts aware and securing local adoption of promising new practices, then moving elsewhere. Developer/demonstrators in the NDN program played this role in particular, but the focus of overall assistance, whatever the program, was at the "front end" of project execution: initiating relationships with local administrators and teachers, assisting these clients in deciding whether and what to adopt (assessing needs, advocating a particular practice) and providing pre-implementation training and resource materials.

Two other modal strategies emerged. About 20% of the external facilitator sample used an intensive, client-centered approach. At the adoption phase, this translated into a dialogue with local staff over crucial needs and the adaptation of the new products or practices to match local characteristics. This role was played prominently by state-administered program developers and Title IV-C facilitators. Finally, about 16% of the sample defined itself as "brokers," people who linked schools with appropriate resources, notably with federally supported programs like the NDN's Developer/Demonstrators. Most NDN State Facilitators fell into this category. When these distinct approaches were combined at a host school district, adoption appeared to come more readily and enthusiastically. For example, State Facilitators made local districts aware of promising products developed within the NDN, whose developers then gave demonstrations and provided the necessary materials and initial training. One of the obvious strengths of the NDN program is that it has evolved a mechanism -- the rudiments of a dissemination technology -- for making local districts aware of the practices in its national pool and for increasing the chances of their adoption.

Not only do external facilitators rely on different dissemination strategies, but they appear to press for adoption at different leverage points. Slightly less than half, in their initial approach to schools, work at the building level; slightly more than half work at the district level. This suggests that there may be different breeds of external facilitators, in part but not fully a function of the programs with which they are associated, and that different skills are required to ensure district-level and building-level adoption.

Internal facilitators are usually program directors, program coordinators and assistant superintendents for curriculum and instruction. As such, they combine the roles of assister and line administrator which virtually ensure local adoption. On the one hand, their "assistance" role calls for them to seek out promising or needed practices and to provide the necessary training and resources for their successful use. On the other hand, their brief as administrators entails getting these new practices approved and materially supported. This is a powerful mix. When internal facilitators hook up with external facilitators to deliver an innovation, the adoption and initial training process is smoother and faster.

Characteristics of Adopting Schools, Districts, and People: Implications for Policy and Action

Having reviewed the universe of schools and school districts adopting projects disseminated with US Education Department support, along with the factors influencing adoption, we can derive some implications for future policy and practice.

1. Stay with traditional or conservative schools. There are indications that these programs are reaching a second generation of users, those in schools judged to be more conservative than innovative. If so, schools with an active history of adopting federally supported innovatons are no longer hogging these programs. This means that (a) the programs themselves are adaptable and attractive to a larger universe of schools and (b) schools which have previously spent less time improving school practices by the adoption of new products are becoming more active and, presumably, more instructionally effective.

2. Be attentive to State Education Agency policy. Some states are not interested in federal dissemination or are only interested in some facets. Other SEAs are tailor-made for existing federally supported activities. Federal and regional agencies would do well to elucidate these differences and to differentiate modes of disseminating new practices according to state-level policy options and political-historical realities.

3. Work through or with central office administrators; maintain their "linkage" roles. Adoption of new school improvement programs appears to be faster and more certain when central office administrators get involved. In the NDN program, they are often "hooked" at awareness conferences as they scan the environment for promising and "resource-expanding" practices; NDN staff and State Facilitators would do well to reinforce their awareness-generating activities among this public. Central office staff also have the administrative clout to get new practices adopted and locally endowed. Getting their endorsement and commitment as part of the development phase (as in the Title IV-C program) or of the delivery phase (as in NDN and state-administered programs) pays handsome rewards.

   In addition, program coordinators or program-focused assistant superintendents are windows on the outside world; part of their job is introducing school staff to new ideas and practices. If these positions are eliminated and the scanning functions are not re-assigned, districts will have virtually no way of finding out about projects of high potential value. Small and rural districts are especially vulnerable here, as many have rather scant central office staff to begin with. Systematic contact by knowledgeable disseminators in such areas is even more imperative to offset a local resource-importing deficiency.

4. Be aware of and address users' incentives. If, as field study data suggest, the institutional dynamics of these programs are such that end-users of the innovation are more targets than initiators of school improvement efforts, even within the IV-C program, policy should take account of their priorities for adoption. Users in this situation are likely to attend more to the goodness of personal fit, the likely demands (notably, the magnitude of practice change) and the face value of the practice relative to the one they use customarily. But an equally important criterion is the degree to which taking on the new practice meets more professional goals -- is transferable to other areas of daily work, provides further training or wider expertise and knowledgeability, prepares the ground for a career readjustment. New practices that can be shown to enhance professional capacities are more likely to be adopted by teachers and support staff than practices presented on their merits alone. More ambitious, change-bearing innovations may need this larger, professionalizing dimension in order to get endorsed at all.

5. Add in-person dissemination functions to programs without them. The BEH commercially disseminated strategy is the chief culprit here. Actual implementation was dramatically lower when products were delivered without face-to-face contact between disseminators and adopters. This finding is consonant with virtually all recent empirical work (Emrick & Peterson, 1978). Disseminators enhance the credibility of packaged materials, disarm critics, strengthen local advocates, provide initial assistance and negotiate local adaptations; making an economy of these several functions is usually counter-productive.

6. Find out more about external facilitators; differentiate their roles. The implementation of practices contributing concretely to school improvement appears to live or die by the presence of external agents who deliver, broker or lay the groundwork for these efforts. Without these "linkage" functions, the federal dissemination and school improvement effort would fail. An investment in more than one of these functions appears to facilitate local adoption. While this study provides the first comprehensive view of facilitators' institutional setting, background characteristics, and roles and interventions, finer-grained work is needed, in particular on the ways in which these several functions are carried out on a daily basis and how they affect the adoption process. Also, external facilitators appear to be overloaded with multiple roles that reduce the time spent on dissemination; as one informant put it, "Everybody wants 100%." Given their importance in achieving successful local use of new practices, dissemination staff should be spending more time disseminating, with the attendant reinforcement of that role in job descriptions.

Necessary and Sufficient Conditions for Successful Implementation: Findings

Recent reviews of the literature (e.g., Fullan & Pomfret, 1977; Fullan, 1982) and longitudinal studies of educational innovation (e.g., Hall & Loucks, 1977) have brought home the point that adopting an innovation does not ensure its actual use and that the educational graveyard is full of adoptions that were never implemented, or were indifferently implemented. In this and the next section, we summarize and draw action implications from study findings as a function of the successive phases of program implementation: at the start-up point, during initial implementation, and during later implementation. We then take up desirable and less desirable outcomes and try to account for the factors that determine successful use.

1. Assessing the terrain: The degree and importance of implementation readiness.

Both the survey and field study addressed the question of relative preparedness prior to actual use. Respondents were asked to indicate the extent to which eight aspects of readiness were in place prior to their adoption of the innovation. The most frequent response given by users of the innovation was "only partly in place" as regarded the "motivation to achieve the purpose of the project," "requisite resources (equipment, access, time) and skills," "an understanding of the new practice," "materials developed specifically for the practice," and "provision for follow-up assistance." They typically reported that both the motivation to adopt the practice and the requisite funds were "fully in place."

As a rule, the estimates of administrators (principals, superintendents and local facilitators) were more positively skewed but fell in the same categories (partly in place, fully in place) as users' except for one item: administrators viewed the "motivation to adopt" as only partly in place prior to implementation.

The composite judgment here -- that preparedness is inadequate but not drastically so -- needs qualification. About 25% of users felt that "resources" and "understanding" were *fully* in place; over 35% thought there were adequate "skills" and "motivation to achieve the purpose." On the other hand, more than 25% estimated that resources, materials and funds were altogether missing. Field study data showed that the second cohort of users was better prepared than the "pioneers," such that egregious inadequacies in the first year were overcome progressively. It is also illusory to expect that all sites will be fully ready at the time of initial use.

Field study researchers asked informants about facets of readiness whose absence created the most problems initially. These were *materials*, requisite *skills* and *provisions for follow-up assistance*. Materials were particularly problematic in that many of these practices are materials-centered -- packages, curriculum units, testing and diagnostic instruments -- such that successful use depends on their quality and availability. Lack of requisite skills also hurt -- hurt more, in fact, than did inadequate front-end training *per se*. This played out differently as a function of the complexity and amount of demand of the innovations. Some projects were so ambitious that pre-implementation training could only provide a taste of what was to come. As a result, these projects survived on the strength of (a) users' pre-existing instructional and managerial repertoire in the same area -- having, as one user put it, "a lot of these types of programs under my belt" -- and (b) ongoing debugging and technical assistance. By contrast, other innovations were modest "add-on" or "drop-in" projects from which users could pick and choose at discretion, so that training was largely superfluous. In both cases, there was a general perception that the course of early implementation was largely unpredictable, and that needs for assistance would become clearer in a few months' time. However, *in only a quarter of the field sites was better-than-token follow-up assistance actually provided*.

Inadequate motivation or poor understanding of the practice by themselves were also serious handicaps to successful early use. Levels of initial motivation, whether high or low, were soft; users wanted to see how the practice worked in daily school use before decisively buying into or opting out of it. Similarly, users had only a vague understanding of how the project worked before coming to grips with it. Here again, the issue was postponed. Staff were willing and able to take on the project with only a dim, global sense of its properties. Early "roughness" and difficulty were more characteristic than not, especially for demanding projects. Most survived, some by sheer will and others because adequate assistance was available, especially in the latter stages of implementation. The picture that emerges is of teachers with an impetus for trying something new (usually offered by an administrator), especially when the something new is presented to them by a peer who conveys solid experience "at the chalkface" and can assert with confidence, as well as demonstrate, that the advocated practice "works" with kids. Exposure to such "model" peer examples is energizing.

Between-program differences. Both survey and field study data show that NDN and state-administered programs provided more external pre-implementation assistance than did Title IV-C and BEH programs. This was expected. NDN and state-administered programs have chiefly to do with the extensive dissemination of products, whereas IV-C projects are theoretically home-grown ventures, so that program development is part of an internal, pre-implementation process of preparing for more widespread local use. BEH innovations do not provide for face-to-face preparation. But the field study found that *virtually all NDN sites were better prepared for initial use than IV-C sites*, notably in two of the three key areas identified by users: materials and skills. It appears that NDN Developers/Demonstrators and State Facilitators are doing well at their job of preparing local users and lining up the requisite start-up conditions (or are somehow winnowing out sites that are not yet ready to go), whereas IV-C projects are less well prepared at the outset.

How much does inadequate preparation hurt a project? Both survey and field study data indicate that *low readiness makes initial execution more rocky but does not determine ultimate levels of success*. In fact, the most successful field site projects were all rough starters. So, however, were the poorest performing sites. Nor was readiness by itself the strongest determinant of smooth early use. Other influential variables included *administrative advocacy and pressure* for the change (we *will* do it); *administrative* insistence on orthodox use of the practice-as-originally-designed (*and*, we will do it *right*) making for rougher starts; *actual fit* between the demands of the innovation and the classroom or building (better fit smoothed out early use); *actual degree of practice change* (relative to user's prior experience: more change meant greater problems); versus *latitude* for making changes given to users by administrators (which eased implementation but diminished the amount of change achieved); and *project scale* (small-scale projects had smoother starts).

Putting all these variables together, the field study found that initially smooth-implementing sites were better "prepared" as a result of having reduced the original scale of the project and of having lowered its gradient of practical change, thereby bettering local fit. In essence, users bargained with administrators for latitude to downsize or "midgetize" the initial version. Downsizing eliminated most of the potential headaches but also threw out most of the potential rewards.

By contrast, rough-implementing sites were in part less well "prepared" as a result of maintaining the ambitious, change-inducing and ill-fitting aspects of the project, all of which also made for difficult initial use. So high implementation readiness may be masking the trivialization of local change and low readiness signaling a major shift in local practices. The most important factor is relative scale, not program affiliation (e.g., NDN, IV-C). We discovered that an innovation is not an innovation is not an innovation . . . Only when it is examined in light of a particular teacher's or site's pre-existing situation can the extent of required change be determined. So the choice is quite clear: non-opportunistic leadership will yield substantial payoffs. Local administrators and developers should be emboldened to attempting major changes, provided they are up to the task of continuing support and institutionalization.

2. Starting-in: The early experience of changing school practice.

None of the major empirical studies of the dissemination of educational innovations has looked intensively at new practices as they enter the classroom. We know little about the ways in which new practices are incorporated into ongoing instruction, are adapted, and are stabilized. There is, however, some ill-substantiated but generally accepted lore among policy-makers and researchers to the effect that innovations, either home-grown or disseminated ones, do not lead to substantial changes in classroom behavior but are rather old wine in new bottles. Both the survey and field study were designed to fill this important knowledge gap.

How did implementation proceed? Using a Practice Profile (Loucks & Crandall, 1982), a tool developed especially for this study, survey researchers were first able to determine that users in our sample varied in how much behavioral change the new practice required at the time of adoption. For some, major areas of one's teaching had to be revised in order to meet the developer's ideal of "faithful" use. For other adopters, the practice was indeed old wine in new bottles, for it required only a small change of their teaching practice. The determination that there were two distinct groups in the sample -- one that required major change and one that required minor change -- turned out to be significant when analyzing which factors influenced the success of implementation.

We found that a minority of sites experienced a smooth early execution. Most users, notably at Title IV-C sites, had serious difficulties. At the classroom level, teachers complained of day-to-day coping, unsuccessful attempts to "make it work like it's supposed to," continuous and often frustrating cycles of trial and error, inability to get through daily or weekly segments, and the sacrifice of other core activities. Overall, difficulties were related to the overflow of apparently simultaneous tasks ("so much coming at me"), to unpredictability (sometimes a treatment works, sometimes it doesn't) and to a lack of understanding (little differentiation, an unintegrated mental road map).

As other researchers have found (e.g., Hall & Loucks, 1978), users were self-preoccupied during early implementation. Whether pupils were profiting from the practice was a secondary concern at this stage. There were widepread feelings of apprehension, confusion, even distress. Areas of concern included professional inadequacy (not doing it "right"), flaws in the innovation ("not working like it should"), bad institutional fallout, and exhaustion ("barely hanging on").

Within this litany of woes, there was a distinct cluster of smoothly implementing sites. All were characterized by relative smallness of scale, low to moderate degrees of practice change relative to prior experience, good innovation-organization fit, and wide latitude given users to make changes. These are the "downsized" projects alluded to earlier. While not free of initial bugs, these projects cause transitory or minor difficulties (e.g., increased record-keeping, lack of time for planning and pre-testing). Had these projects been executed as originally designed, there was strong evidence that these sites would have joined the ranks of the rough-starting sites. In all these cases, local administrators colluded with users to scale down the project to more easily manageable proportions.

By contrast, the rougher-implementing sites were, for the most part, the locus of ambitious, change-inducing and organizationally problematic projects. Users were doing something sharply different from what they normally did, while at the same time confronting a poor fit between the classroom or school and the heavy demands of the innovation. In most cases, site personnel had underestimated the magnitude of the enterprise. (Recall our previous observation that school people typically set out on ambitious journeys without a clear grasp of what lies ahead. In some sense, this makes them real risk-takers. Of course, many of these ships founder in unchartered waters. Trained navigators can be valuable adjuncts to such enterprises.

However, not all rough-starting sites were in favorable environments grappling with organizationally and instructionally demanding innovations. In a few cases, early implementation was flawed as a result of poor project design, strong local resistance, and cavalier administrative leadership.

Adaptation of the innovation. As noted earlier, one of the contributions of the study to future research was the design and validation of a Practice Profile instrument allowing researchers and administrators to delineate the essential characteristics of a new practice, assess in detail the relative departure from past practice, and gauge the extent to which local use is faithful to the original design (Loucks and Crandall, 1982). Survey data indicated that local use was, overall, relatively faithful; some 12% of users had 100% fidelity and only 9% were under 40%. Field study data, covering all site personnel (i.e., not just the initial cadre of users trained by external facilitators) and tracking implementation over time, found greater change. Roughly half the field sites changed from one-third to two-thirds of the core components, by reducing them, adding to them or reconfiguring them with other parts of users' instructional repertoires. Longer-lasting projects had greater changes. The pattern at NDN sites was one of fairly heavy early reductions, made before or during initial implementation. Changes at Title IV-C sites were more irregular and tended to come later, but the overall magnitude of change was similar to that in NDN sites.

In justifying the modifications made locally, users gave these explanations: reductions due to lack of time to do the whole project; deletion of boring, inappropriate, personally uncongenial or overtaxing parts; and addition of "needed," strong or enjoyable units.

Casting a wide net for the best predictors of degree of adaptation in the innovation, eight were isolated in the field study. Poor user fit was associated with minor changes (principally because of low latitude allowed users for making changes). When there was high anticipated classroom change, people at the field sites tended to make significant changes in the innovation, often in the direction of paring it down to a less discrepant version. The same thing appeared to happen in cases of high anticipated organizational change and poor-to-fair organizational fit. The gist here is that when working arrangements and regulations could not accommodate to the innovation, the innovation tended to get changed to fit. Organizationally speaking, most of the projects made moderate to strong demands, many of which were not visible at the outset. The organizational response to these demands sometimes, but not always, took the form of refashioning the innovation in order to weaken the demands.

Surveying the field sites' implementation readiness and comparing it to the magnitude of adaptation in the innovation showed that ill-prepared sites made significant and early changes. Also, in some cases largeness/smallness of innovation scale went along with magnitude of change, with large-scale ventures making greater changes. Finally, administrative latitude proved a powerful predictor. When site personnel got greater license to make changes, they did just that, usually in the direction of watering down the more demanding -- and potentially change-inducing -- aspects of the project. Sometimes administrators and teachers negotiated amounts and types of authorized changes; sometimes teachers got outright discretionary authorization.

There were four different scenarios for latitude-giving and innovation adaptation across field sites. One was inverse to the more typical high-latitude ones; one could call it "forceful leadership." At these sites administrators permitted few changes in the innovation, supervising users closely and thereby delivering highly faithful, change-producing innovations in the face of initial discontent and passive resistance. The three other scenarios were: "overreaching" (initially faithful, then highly cut-back implementation as local staff wore itself out); "local refitting" (smaller-scale innovations with wide latitude given users to make changes); and "salvaging" (ambitious, ill-prepared and roughly-starting projects that were initially cut back, then progressively reinstated).

3. Later implementation: Practice mastery and stabilization

Both survey and field study data show users attaining strong technical mastery of the new practices within 18 months in the complex projects and within 5-6 months in the case of the "downsized" projects. Later energies were then channeled into refining, de-bugging and extending core components.

In this later phase, users reported a sense of achieved efficacy. They spoke of being comfortable with the practice, technically on top of it, of feeling confident and in control ("getting it to go *my* way"), and of feeling gratified by signs of success, notably pupils' responsiveness.

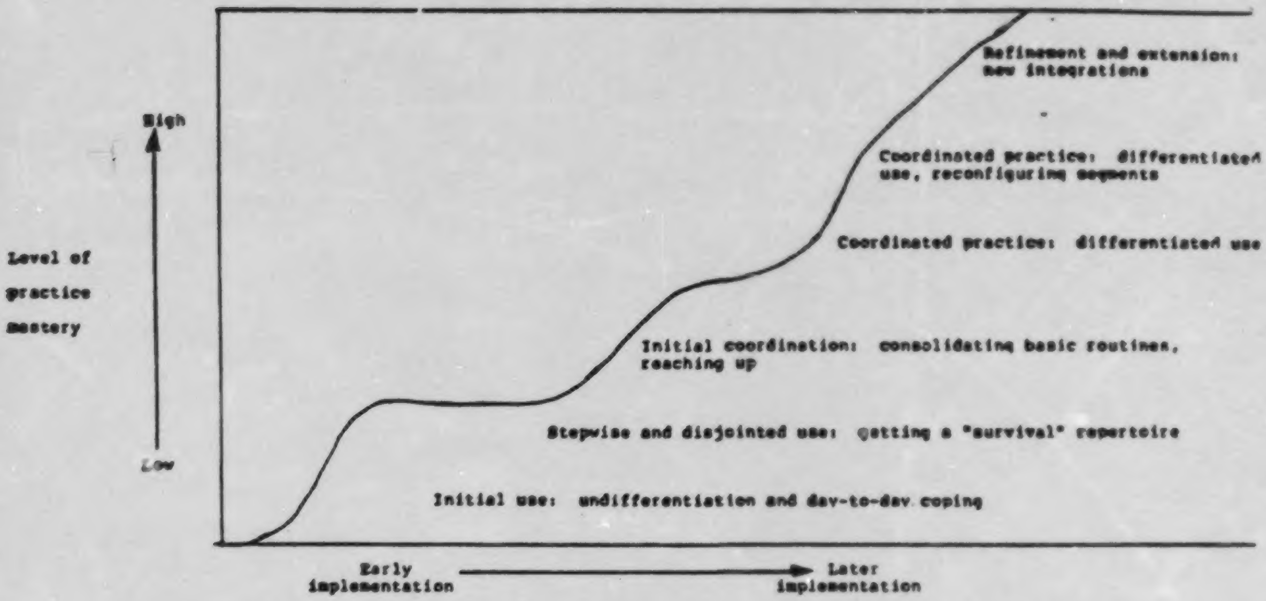
Users also got a more differentiated and integrated fix on the project by dint of gradually making it work consistently and predictably. Understanding the innovation meant learning what *could* be done with it.

By midway in the second year, complex projects were easier to do, went more quickly, had predictable effects and, overall, "worked" progressively better. Most time was being spent on 6 types of tasks: *reaching up* (taking on more demanding segments), *de-bugging* outstanding flaws, *refining*, *integrating* these new materials into existing ones, *adapting* the practice to ongoing changes in the pupil population, and *extending* the innovation to other activities.

As implementation progressed, problems and concerns shifted from the self to the task and to pupils, which is in keeping with other research (Hall & Loucks, 1978). As one teacher said, "I was a lot more off myself and on the kids." Still, users at several sites complained of waning energy, of disenchantment and discouragement. New, more institutional concerns surfaced: the priority of the project, poor functioning of a part or the whole, lack of support from staff outside the project, worries about whether the promised results could be delivered.

One way of pooling findings relative to shifts in practice mastery from early to later implementation is by representing that progression as a learning curve (See Figure 1).

Figure 1: Practice Mastery Plotted as a Learning Curve



For the most part, this progression is consonant with the Levels of Use model elaborated by Hall and Loucks (1977), except that the findings reported here show differential mastery of the various segments of an innovation rather than a global progression through all components.

Gradients of practice change. Causal modeling of the survey data was most meaningful when two families of users were derived: those undertaking a major change in instructional or managerial practice and those making a minor change. The field study isolated four families of which two corresponded closest to the major/minor change dichotomy: "overreachers" and "local refitters."

At both survey and field sites, moderate to high levels of actual change in user practice stemming from innovation implementation were reported or observed. At high-change field sites, the projects began with a vengeance, induced pervasive changes (not only in daily routines but also in basic constructs), took a long time settling-down, consumed all available energy, also caused negative changes (e.g., loss of variety; sacrifice of other, favorite activities), and did all this through varying amounts of administrative pressure. So long as the pressure for changes was accompanied by support and assistance, it was not unduly troubling to teachers. At low-change sites, there was the inverse profile: timid beginnings, modest changes in daily routines, rapid practice mastery, minor energy expenditure, and little user sense of having been "stretched."

Several factors predicted magnitude of practice change achieved, the most obvious being the magnitude of change attempted. Modest ventures yielded -- at best -- modest returns. Other predictors were levels of assistance, project size or scope, implementation requirements, user commitment, time spent on implementation tasks, classroom and organizational fit, and administrative pressure. The combination of direct pressure -- strong-arming -- and indirect pressure -- exhorting -- when coupled with assistance, seemed to deliver higher levels of user practice change in the course of implementation.

Taken as a whole, the findings on attained practice change -- its extent relative to prior practice, the amount of the innovation actually implemented and the degree of mastery -- are more prominent that most analysts have suggested. In these data, there is as much overhauling as there is tinkering with school practices. In both the survey and field study, we have a median of nearly half the cases showing substantial degrees of practice change as users move from their previous repertoire to the skills required by the new practice. Since many of these innovations are demanding, the changes are correspondingly strong.

In other words, teachers, counselors and support staff in these programs are changing what they do, often dramatically. Moreover, they are consolidating those changes at acceptable levels of mastery. This would not in itself be an arresting finding if the drift of current thinking were not so different, portraying schools and teachers as, at best, sluggishly taken up with school improvement activity. The finding is also buttressed by the fact that the instrumentation used to establish it -- the Practice Profile, the Levels of Use interviews and scale, field study observations over time -- is probably the most robust of the study.

Levels of organizational change. Overall, the innovations disseminated through these four programs had a greater impact on users and pupils than on organizational structures, procedures or climate. Most projects could be readily digested -- added on, dropped in or pulled out -- in ongoing working arrangements. Some, however, changed school-wide operations. These tended to be large-scale efforts making stiff demands on conventional planning and management. Administrative pressure, exerted from the central office as a result of advocacy of and commitment to the practice, supplemented by external help, combined with administrative assistance at the building level to sustain high levels of practice mastery and consolidate the new practice institutionally.

A common scenario in the field study had central office staff -- program directors or coordinators -- authorizing the organizational changes needed to do the project faithfully, while pressuring and providing needed resources to building principals who did the same vis a vis users. This "relay" model did not emerge as clearly in the path models using survey data to predict organizational change. Rather, principal leadership, an amalgam of pressure and assistance, acted jointly with technical assistance from an external facilitator to explain the variation in levels of organizational change.

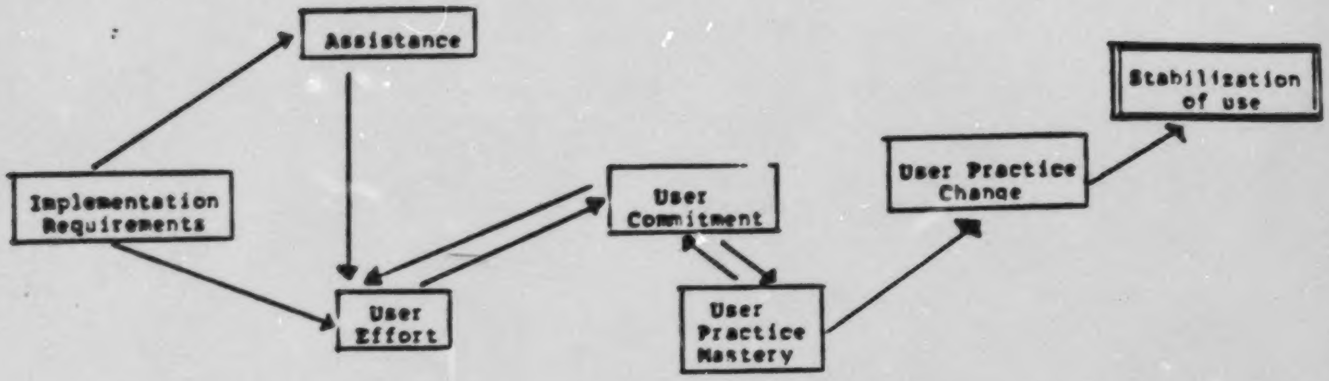
Stabilization of use. The field study focused closely on the process during which new practices got consolidated in users' instructional and managerial repertoires. Stabilization of use turned out to be a compound of practice mastery and program "settledness" (few changes in the innovation, few changes in the pupil population). Users at 10 of the 12 field sites worked their way to moderate-to-high levels of practice mastery and program settledness; survey data shared the same trend.

There were several avenues leading there. *Higher mastery* usually resulted from the provision of adequate initial preparation and follow-up assistance, along with strong local endorsement, all of which translated into users' acceptance of or commitment to the project, and into users' technical mastery of its core components. The thumbnail scenario was as follows: users confronted a challenging new practice that turned out to be more intractable than expected. They worked hard at it, receiving peer and external *assistance* and gradually *mastered* it, thereby heightening their *commitment*. Lower assistance, both initial and ongoing, was associated with lower levels of practice mastery and commitment. Also, if commitment and assistance were low, a more favorable but *distant* predictor, like high district endorsement of the project or good program-district fit, did not turn the situation around. A stripped-down model of the main operant variables, pooling survey and field study findings, looks like Figure 2.

The gist of the path models derived from survey data was that, for projects entailing major practice change, user commitment acted to increase user effort in the form of time spent on classroom tasks. Effort was in turn heightened by external assistance. Committed users tried harder, notably when they received help from outside the district. The field study found more reciprocal effects. User commitment was as much the *result* as the cause of effortful mastery of a professionally demanding project. Initial motivation was largely soft, but grew stronger as users rose to the challenge, received peer, administrative and external help, and enjoyed the experience of craft mastery. This was also the case in some instances when initial commitment was initially *low*; recalcitrant users brought kicking and screaming into the project often worked their way progressively to mastery of the core components and became advocates of the innovation to the next generation of users.

Higher program settledness, the second component of stabilization, was helped but not assured by skillful execution. Rather, it resulted from *building administrator involvement*. Endorsement often came from resolving the problem of poor fit between building-level working arrangements and the demands of the innovation, which was often done by *transforming the innovation* to

Figure 2: Practice Mastery and Stabilization of Use: General Model Combining Survey and Field Study Data


Assistance
Stabilization of use
Implementation Requirements
User Commitment
User Practice Change
User Effort
User Practice Mastery

make it more amenable institutionally. Closely policed, "enforced" innovations also settled down -- few changes were authorized -- and gradually, sometimes grudgingly, got the building-level endorsement that assured settledness.

The role of assistance in local mastery and stabilization of use. Getting help matters in mastering and stabilizing new practices; having more of it and more diverse kinds smooths the process significantly. It is especially important after early implementation when users have developed enough of an experience base to know where they need help. Also, providing aid does not mean mobilizing or bankrolling large armies of external consultants; most can be done locally, and a little goes a long way. Simply arranging for teachers next door to one another to meet periodically pays handsome rewards. As a teacher at one of the field sites put it, "It makes such a difference . . . she has me and I have her." Recent empirical studies (e.g., Louis & Rosenblum, 1981) say much the same thing, underscoring the importance of staff release time as the key factor in mobilizing resources for improvement-related activities.

The sites giving high assistance did so with much more diversity, frequency, and sustained energy over the life of the project than did the sites where initial assistance disappeared, or was weak and ineffective. Effective assistance was user-oriented rather than innovation- or assister-oriented, and got more so over time. It achieved effects such as reassurance, support, expansion of users' repertoire, problem-solving and increased interdependence.

Assistance *events* used more frequently in high-assistance sites were external conferences, in-service training, visits, and meetings of committees, teams and faculties. *Ongoing* assistance was more consistently supplied, and came more frequently in high-assistance sites from materials, peers, relatives, external agents, and central office personnel.

Assistance was more frequent and intense when *large-scope, practice-changing* innovations were being attempted with *moderate funding*, and when users either had little *administrative latitude* to change the innovation or used the latitude they had to supply *peer support*. In essence, larger-scale, change-bearing innovations live or die by the amount and quality of help their users receive once the project is underway.

However, heavy assistance does not necessarily make for easier early implementation; it is not able to override or compensate for the sheer effects of the innovation's demands, if they are substantial. Of course, weak assistance can make for rougher implementation, especially if the innovation is somewhat demanding. But smaller innovations can usually achieve smooth early implementation without much help. Larger innovations require continuing assistance for eventual practice stabilization, but small ones do not. (Indeed, our causal models of minor change situations revealed "elapsed time" to be the most prominent predictor of the modest changes achieved.)

As crucial as later or "back-end" technical assistance is, little of it was actually provided. Survey data showed that, across programs, external facilitators spent 68% of their time helping with adoption and "front-end" training and the remaining 32% on follow-up assistance. The NDN is contributing the most to this disequilibrium; virtually all its technical assistance energies go into dissemination (creating awareness of its pool of practices, securing local adoptions, getting users ready), such that *implementation* assistance is largely a local affair.

At field sites where NDN staff stayed in contact with local users or trained local personnel, project execution was markedly smoother. This finding goes along with the conclusions of the earlier NDN evaluation (Emrick, Peterson & Agarwala-Rogers, 1977) and the recent study done by the House Appropriations Subcommittees' Investigations Staff which harped on the importance of follow-up assistance from developers and state facilitators, without which projects were virtually certain to falter.

Follow-up external assistance matters more than other recent studies (e.g., Berman & McLaughlin, 1978; Bentzen, 1974) *would have us believe*. Most of the important bugs and bungling (e.g., skill deficiencies, procedural snarls, unworkable materials) only appear gradually, and local staff, left to their own devices, spend colossal amounts of time overcoming them. To be sure, that kind of investment builds local commitment and "ownership," but it also burns out users, makes administrators nervous and steals time from other core activities in the school. A key item, of course, is the *quality* of external help. The evidence here is that most external assistance provided by or though these programs is practical, user-sensitive and effective. There is simply too little of it.

Survey data show that external facilitators give less assistance to schools where there are local facilitators to pick up the slack. There are also indications that, as was the case in the adoption phase, there are *different breeds of external facilitator*. One breed is a locally oriented person who works directly with teachers. Another type works through a local facilitator who does most of the hands-on contact with teachers. Still another works with administrators and has little contact with teachers.

So, linkage helps. Survey data showed that teacher practice change was higher at schools where both external and local facilitators assisted than for sites where only external facilitators helped. The NDN mean scores for practice change were twice as high for external and internal assistance than for external aid alone.

The key task for those helping schools make changes in practice is that of building a local infrastructure to follow up or supplant front-end external assistance. The most successful field sites were those where this happened. There were five local sources of help: local trainers or consultants, peers, project directors, building principals and central office administrators.

Local consultants -- often part-time people released from full teaching loads -- were easily reachable and performed a variety of services: making materials, chairing staff meetings, giving solace to dispirited users, authorizing changes in the project format, giving demonstrations, circulating regularly in implementing classrooms or labs. *Peers* provided emotional and logistical support. *Project directors* provided materials, gave authorizations to circumvent regulations getting in the way of project execution and furnished technical advice. *Building principals* picked up the slack when central office administrators turned their attention elsewhere, which almost invariably happened. They chiefly helped with scheduling, coordinating, providing resources and authorizations and, to a lesser extent, handling paperwork. Finally, *central office administrators* provided authorizations, legitimacy and funds for materials and training. They also jacked up building principal assistance.

The field study found that central office involvement in assistance was initially heavy to moderate across sites, stayed moderate in sites which continued to have high overall assistance, and dwindled in places where overall assistance was also dropping off. The inference is that the central office sets the tone and can deliver more and different kinds of local assistance than other sources -- notably by providing the resources and staff deployment that can be converted by others into technical assistance activity. The combination of pressure and assistance -- especially when delivered by central office administrators -- is a nearly irresistable one in achieving significant practice change. Insensitive administrative pressure by itself -- the administrator as thug -- gets nowhere. Users remain uncommitted, minimally skillful and locked into teacher-administrator disharmony that eventually does the project in.

Survey data analysis produced two distinct and plausible models of optimal assistance. Results of projects involving major practice change flourished with a variety of on-site assistance provided by internal facilitators, in particular the principal and the project director/local consultant. The "minor change" group needed both less help and less interference once underway. These teachers benefited from front-end orientation and illustration, and from the later services of an external facilitator to keep administrators out of their hair. There was little need for local facilitators or for substantial aid from principals.

Necessary and Sufficient Conditions for Successful Implementation: Implications for Policy and Action

1. Invest selectively in pre-implementation assistance. The items with the biggest payoff appear to be materials, the presence of requisite skills and the provision of time and resources for later debugging. The rest, including formal training, matters less. Since requisite skills are largely a matter of prior experience, they cannot be programmatically provided for, but overbudgeting slightly for materials and for follow-up technical assistance is the best way of shoring up skill deficiencies. The key task at the outset is to keep the scale, scope and bite of the project intact -- maintaining the gradient of practice and organizational change -- rather than caving in to users' premonitions and administrators' discomfort with the poor institutional fit. This does not translate into cultivating underpreparedness which, if severe, will lead to desertion by users and administrators alike.

2. Expect, but try to limit, changes in the innovation as originally designed. As the Rand study suggests, "mutual adaptation" of a project between developers and host organizations may be a hard fact of school life. Adaptation to local characteristics and constraints is probably how schools metabolize innovations; adaptations of sites to core components of the innovation is how local practices get

changed. Consonant with Rand, this study suggests only that changing the innovation to fit the school is not necessarily a good thing. It can, and often does, dismember the change-inducing aspects of the innovation that were the reasons for adoption in the first place.

Holding out for fidelity, at least in the initial phase, may be a better policy, in particular for NDN products whose quality is more certain and whose more ambitious components tend to get bargained away even before local use begins. Since faithful implementation is stressful, particularly for teachers, program directors or administrators will have to provide *both* supervision (to keep users on track) and assistance (to facilitate mastery). Too much of the former and too little of the latter is a formula for resentment and failure.

To have these provisions, however, *also* means that supervisors have to be -- and *stay* -- knowledgeable about the practice. One typical way of doing this -- also highlighted in the Emrick et al study of the NDN -- is by including administrators in staff training. However, one of our insights is how different the worlds of teachers and administrators are. This suggests that what administrators need to understand in order to provide information, supervision and assistance may well be quite different from the knowledge conveyed in a typical training workshop for teachers. One could imagine, for instance, the benefits of providing a special mini-course on administrative features of the innovation and what it means for administrative support during project implementation.

3. *Keep central office administrators involved.* They deliver critical follow-up support and appear to keep principals busier ministering to the projects than would have happened otherwise. They also have the power and means to facilitate the mobilization of *other* types and sources of follow-up assistance.

4. *Invest more in later rather than earlier commitment of users.* Practitioners seem to get committed as a result of involvement more than as a prelude to it. Making sure users are lined up behind a project before starting in looks to be a poorer investment than providing follow-up technical assistance that delivers users' commitment by facilitating practice mastery. Doing it well builds ownership and advocacy of early users vis a vis other practitioners considering adoption.

5. *Specialize external facilitators.* As was the case for facilitating adoption, some external assistors work better with local teachers, others as brokers or process consultants linked to local facilitators, still others are effective with administrators. Some need to *remain* generalists. We need to know which facilitator characteristics go best with which

roles, and to translate those characteristics into recruitment, training programs, and support structures. Focused reflection by existing facilitators, yielding greater self-awareness of congenial working styles, could help here.

6. *Invest in local facilitators*. We have spoken elsewhere of the importance of a highly placed (i.e., central office) advocate and supporter. Maintaining this person's interest, especially as the moment of possible institutionalization approaches, is imperative. Of course, not all school districts are large enough or structured optimally for a specialized role at that level. In these cases, we urge an inspection of the troops for other talent. Such talent, given its payoff, comes cheap -- half-time or one third-released time for a teacher. Our findings clearly show that such local, easily accessed assistors are invaluable, especially for follow-up assistance. They can perform multiple functions, ranging from making materials to giving demonstrations; have local legitimacy; can be rotated in and out and -- perhaps most important -- can attend to problems before they turn into crises.

   Decoupling the "consultant" from "supervisor" role is well-advised; a time-released peer can provide different and better technical and interpersonal services than a project director who both administers and technically assists implementing staff. Thus, if a project does not have strong ties to the central office and its attendant resources and clout, the consultant role is a better single investment. (A caveat: norms in many schools do not support peers acting as experts with their colleagues. Indeed, an exchange with another district might be a better bet -- the "50-miles from home with a briefcase, you're an expert" phenomenon.)

Achieving Successful Outcomes: Findings

Changing, mastering and stabilizing new practices are all honorable achievements, but they beg the obvious question of significance. The reader wants to know what difference it made that a new practice was implemented. For example, a trivial product could have been adopted, mastered and stabilized, without making any wider institutional contribution. Or a non-trivial practice could have been implemented but not fully institutionalized, so that its impact on students and staff was short-lived.

This section reviews findings in six outcome areas: general assessment of the innovation, impact on students, extension of the practice within and beyond adopting schools, benefits to users, organizational changes, and institutionalization of the practice. There is then a portrayal of high-outcome sites in contrast to low-outcome sites. For each outcome, the major determinants are identified, with special attention to process factors that are *manipulable*, i.e., that can be operationally replicated in other settings.

General assessment of the innovation. Survey respondents were a contented lot. For 85% of the nearly 500 teachers and administrators interviewed personally, the advantages of the new practice outweighed its demerits. Two-thirds could think of nothing "negative happening" as a result of getting involved. Two-thirds felt that, as a result of this experience, there should be more school improvement activity. Respondents were able to list several weaknesses of the project along with its strengths, but their net assessment was lopsidedly positive.

Field study data are markedly less rhapsodic, but recall that they were more "investigative" and reached beyond the core of initial users who had been exposed to training by the original developer. Nonetheless, they too show a net positive assessment on the part of teachers, support staff and administrators. Field researchers also observed tangible signs of instructional improvement and resulting gains in pupil performance at the majority of field sites. No significant between-program differences emerged.

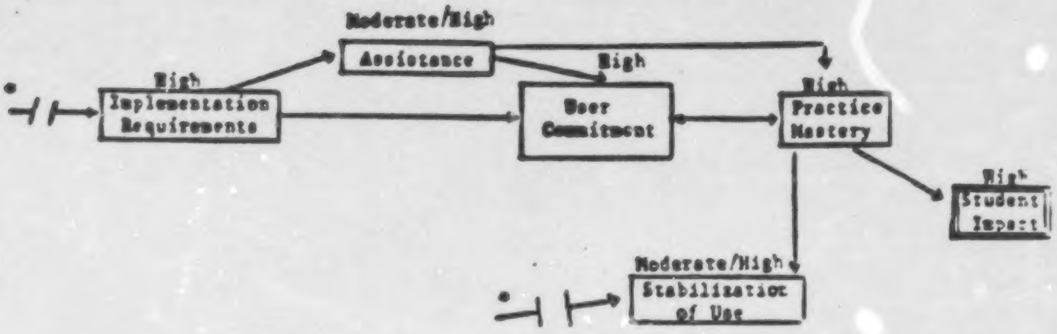
Impact on students. When asked to list the chief effects of the innovation, survey respondents highlighted student-centered gains. Achievement gains and positive attitude/motivational shifts headed the list. These are especially noteworthy in that a healthy proportion of projects addressed an under-achieving and/or turned-off pupil population. At field sites, there were generally harder data (e.g., test scores) available and accessible given the extended time on-site. Roughly half the sites showed strong impact on students; the remaining half was split between moderate and low effects.

The main factors explaining student impact were user commitment, along with strong assistance (especially internal assistance) that led directly to practice mastery and stabilization of use. The most frequent scenario -- describing half the field sites -- stressed these factors. It was called "stabilized, committed mastery;" the causal stream is illustrated in Figure 3.

Another high-impact but less frequent profile added the feature of "enforcement," with the presence of administrative pressure on users along with restriction of changes in the innovation. By contrast, low-impact sites suffered chronically either from low commitment or from "project-blunting" -- reduction in the thrust of the innovation so far that its impact was, at best, trivial. There were no significant between-program differences.

Essentially, the development of committed, stable, skillful use of the new practice is the critical formula for achieving effects on students. Users willing to try the innovation, learning to use it well and routinely, and thereby getting more firmly committed to its continued use, will deliver positive results -- provided institutional unrest or friction is low and the impactful components of the practice are not bleached out. In other words, delivering strong practice mastery is the most straightforward and the best way to deliver strong impacts on pupils. Since the main

Figure 3: Chain of Variables Predicting Impact on Students (Field Study Data)



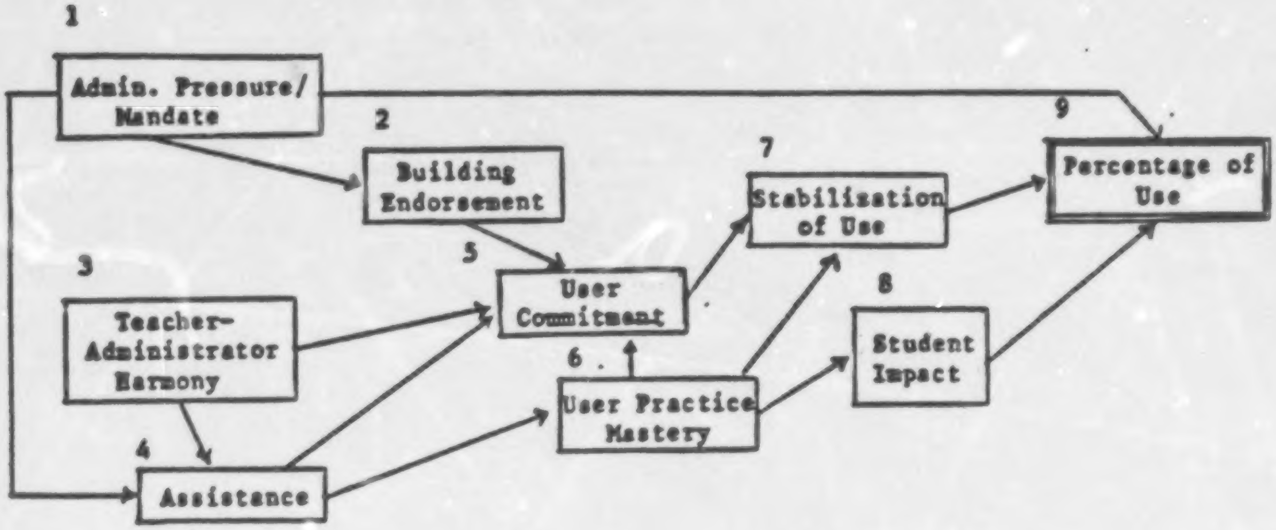
* Influence of variables not shown

determinants of practice mastery are also clear -- commitment and assistance -- and largely manipulable, we have the essential ingredients for a local and regional policy and concomitant strategy.

Extension of the practice within and outside adopting schools. Getting a new practice in the hands of most or all eligible users is an important item, especially since innovations are all too often ghetto-ized into "pilot" or "experimental" projects. Survey data are somewhat polarized; 40% of administrators said that all eligible users were involved by the end of implementation, and 43% said that fewer than a half of eligible teachers were users. The field study turned up four clusters, each taking up a fourth of the sample: (1) substantial use, including all or most eligible teachers in the adopting school and district; (2) full within-building but more limited district-level use; (3) moderate to full use for a specialized population, such as remedial classes or third-grade classes; and (4) minimal or discontinued use. Overall, the field data are more heartening.

Producing a high percentage of use is a somewhat different operation for innovations requiring a major practice change than for low-wattage efforts. The core ingredients are maintaining some administrative pressure throughout implementation, providing assistance sufficient to enable user practice mastery and, thereby, stabilization of use and supporting the development of user commitment. Assistance can be less crucial for innovations that ask less of users. But a modicum of teacher-administrator harmony is important to facilitate the process of commitment and stabilization of use. The causal flow, a smoothed-out version of the paths derived for subsets of field sites, is illustrated in Figure 4.

Figure 4. Factors Predicting Percentage of Use
(Field Study Data)


1
Admin. Pressure/ Mandate
2
Building Endorsement
3
Teacher-Administrator Harmony
4
Assistance
5
User Commitment
6
User Practice Mastery
7
Stabilization of Use
8
Student Impact
9
Percentage of Use

The model suggests several main routes to high percentage of use. One, at the top, involves direct exertion of administrative influence (1, 9); another emphasizes commitment and stabilization of use (2, 5, 7, 9); and the third uses assistance (4) to develop commitment (5), practice mastery (6), and student impact (8), along with stabilization of use (7). This model is somewhat different from, but not incongruent with, the individually focused "major change" model derived from the survey data, reported in detail in Volume III.

For innovations requiring considerable user skill, all three streams -- pressure, commitment, practice mastery -- were necessary. For undemanding ones, administrative action was the key variable; innovations were extended when administrators required they be extended and also created the minimal conditions for training and backing up new users. When, by contrast, administrators simply handed off the practice to users and drew back, the project usually got watered down and ran its course, seldom extending beyond the original generation of users.

Again, no significant between-program differences emerged for this outcome variable.

User benefits. School practices generally are not revised with the explicit aim of improving teachers' skills, unless this is a vehicle for enhancing pupils' performances or attitudes. This study, in fact, hammers on the "vehicle" notion: impact on pupils was directly contingent on teachers' practice mastery. Low mastery went hand-in-hand with low impact. But practice mastery also appears to go *beyond* program-specific outcomes. The data showed clearly that these innovations, whatever their objectives for pupils, could be vehicles for farther-reaching professional and instructional changes on the part of users -- a sort of value-added increment over and above desirable pupil outcomes.

Self-report data, from both the survey and field study, included users' claims of having become better organized ("It's shaped me up."), better at diagnostic skills, better at teamwork, more savvy about tests and testing, closer interpersonally to pupils, and better at instructional planning and classroom management. The general drift of these changes was that teachers and support staff had become better clinicians: more instructionally skillful, better able to individualize and differentiate instructional treatments, and more interpersonally close to pupils. Moderate to high levels of such "capacity changes" characterized *the majority* of field sites.

At field sites, users reported and researchers observed eight types of capacity change attributable to the use of the innovation:

- Changes in users' everyday classroom practice,
- Repertoire expansion (e.g., ability to individualize),
- Relational changes (e.g., better rapport with pupils),
- Cognitive growth (e.g., better understanding of pupils' ability levels),
- Self-efficacy (feeling more resourceful, instructionally effective),
- Transfer of innovation-derived skills to other parts of one's instructional practice,
- Changes in attitude (e.g, more trusting of pupils), and
- Changes in professional self-image.

Some types of change seemed to come later or to be more difficult to achieve than others. For example, transfer of skills to other tasks and core attitudes about pupils or about one's professional role were contingent on changes in everyday classroom practice of the innovation and on relational shifts, brought about within the project. In effect, the eight items listed above constituted an empirical scale, with the items lower down the list subsuming and requiring the changes listed higher. The specific practice and attitude changes followed directly from the demands made by the project; doing one-on-one remedial work, for example, usually led to better diagnostic and individualizing skills on the part of teachers.

Under which conditions was there high capacity change? In a nutshell, more changed when more was ventured. More was ventured when (a) the project was demanding and constituted a significant practice change, and (b) few "down-scaling changes" in the innovation were made. As a corollary, significant and sustained practice change sometimes required ongoing administrative monitoring and constraint. To recall our earlier review of the four scenarios of adaptation of the innovation, *higher capacity-change sites* were primarily those with an "enforcing" and "over-reaching" script, whereas *lower-change sites* were mostly "local refittings." *Forceful leadership* scenarios involved ambitious classroom-level changes which administrators sustained with a mixture of close monitoring and assistance. *Over-reachers* did precisely that. Although they fell short of their goals, users still went full bore for at least several months beyond their and the school's conventional practices and, in so doing, enlarged local capacities.

Peer and other internal assistance rescued over-reachers. By contrast, *local refitters* were mostly sites where an initially ambitious project was whittled down to a far more modest, less user- and school-discrepant version; this virtually ruled out such second-order outcomes as user capacity changes. Apart from differences in the *amount of change* made in the innovation, local refitters also differed from the higher-change sites by having *inadequate assistance* and low *user commitment*.

Organizational changes. The same practices that change teachers can change the organizations within which teachers work. Improving diagnostic testing, for example, plays out at the classroom level as an individualizing procedure and at the school level as a strengthened grouping and management system. Similarly, the sum of an enriched curriculum in individual classrooms is a stronger school-wide academic program.

Survey respondents listed numerous organizational changes resulting from use of the innovations. One or more such changes were mentioned by administrators in two-thirds of the survey sites. The list highlighted improved instructional methods, improved staff skills and socio-emotional states, better coordinated and organized curricula, and improved planning and scheduling. Note that these are largely "soft" changes (e.g., attitudes and procedures), with few structural accompaniments. However, the field study dwelled less on organizational changes as desirable outcomes of the innovation than as structural by-products of the implementation process, so the data are not parallel. Field study data too showed relatively few such changes; at only two sites were organizational structures, procedures or climate judged to go beyond the installation of the innovation itself, although the innovation, when fully implemented, was in itself an organizational change in five additional sites. And, it must be remembered, structural change is rarely the goal of improvement efforts such as these.

At field sites, schools changed structurally when local contextual pressures brought administrators to choose a large scale, well-conceived, demanding project to whose success their own job was committed. Subsequent administrative pressure and adequate follow-up support of users typically led to full-scale implementation and to the structural changes that followed in its wake. Here again, the impetus for structural changes in the schools came from central office administrators, not from principals, but principals *maintained* them. By contrast, the causal path models predicting the desirable organizational changes contained in survey responses illuminate the roles of the *principal* and *external facilitator*. There were indications that the external facilitator helped get the organizational changes that would consolidate the innovation by making personal contacts with central office staff and local school boards. Field study data showed this happening during early implementation, but not beyond. Recall that the models based on survey data encompass 82 sites and that the dominant thrust of these efforts is not large-scale structural change.

Continuation and institutionalization. New educational practices that don't hang on beyond one or two years are not worth the investment. The gist of recent research (e.g., Yin, 1978) has been that hangers-on are fewer in number than one may have thought and that there are concrete steps that can be taken to ensure greater longevity. How strong has been the performance of federally supported projects?

The Rand study, it should be recalled, gave a poor report card, finding that there were few instances of institutionalization once federal funds ran out (Berman & McLaughlin, 1978). The important step was for local administrators to recognize the implications of "soft" money and to make concrete plans for continuation. The Rand project sample, however, was confined to "seed money" efforts, not including the dissemination of validated practices such as those contained in the NDN and state-administered programs. This study has better news.

Plans for continuation. Both survey and field study measures had two data points: (a) the plans for continuation on the part of local staff and (b) the actual levels of institutionalization, i.e., incorporation into distinct regulations, procurements and staffing plans. Whereas the survey data are solely self-reported, the field study data also contain researcher estimates. For survey data, both users' and administrators' plans for continuation were optimistic. For 94% of the survey sites, there were concrete plans to maintain the innovation as is or with adjustments. The chief predictors of such concrete plans were principals' commitment and principals' leadership. Field study data were less sanguine. In about half the cases the outlook was judged good for continuation *at the same level of operations or better* -- a more stringent criterion. It is important to note that in two cases discontinuation was, in the judgment of our researchers, justified. The innovations were either weak or badly designed at the outset, with no improvement along the way. In the field study, key predictors of continuation were teacher and administrative support -- both from the central office and from building principals -- low environmental turbulence (e.g., absence of budget crises, of major personnel shifts), and clear indications that the project was getting locally "routinized" (i.e., being built into training and budget cycles and getting codified in the form of teachers' guides and prototype materials).

In the cases of both the survey and field study, user practice mastery did not ensure continuation. For example, at four field sites use of the innovation was stabilzed at the classroom level but the outlook for continuation was poor, owing usually to low administrative support or to turbulence. So technically mastering the project, or even demonstrating better pupil performance, did not ensure and sometimes had no bearing on the likelihood of short-term continuation. Less frequently, the converse was also observed, i.e., projects being deliberately continued in the face of low practice mastery and no obvious impact on pupils. These decisions usually resulted from central office administrative fiat, and were motivated by organizational goals (e.g., coordination of curricula), by political expediency, or by careerism.

Institutionalization. Plans for continuation were usually just that -- plans -- and "continuation" meant one or two years hence. A tougher measure of durability was the degree to which the innovations studied were "built into" their local settings. Were there structural features already in place that would support continued and routinized use? Survey instrumentation included a checklist of such features, derived from Yin, that was administered to all role groups. Items included "new staff receive training and orientation in the new practice," "the new practice is formally incorporated into curriculum plans," and "our budget contains a separate line item to support the use of the new practice."

From the data, it was clear that satisfactory current operations and support were not enough: sites with strong institutionalization had made clear organizational changes -- mandating the innovation, building it into curriculum, changing working procedures or structures -- which were relatively irreversible.

Overall, the estimates are fairly high, and distinctly higher than those made in the Rand study, although the data are only self-reported. Training for new staff, incorporation into curriculum and purchase of materials and supplies are in place in roughly half the cases, depending on whom one believes.[4] The weaker-performing indicators, "new staff members" and "line-item budget," may simply be inappropriate for many of the innovations.

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[4] The figures for administrators are higher than for teachers on the items concerning staff training and incorporation into curriculum plans, and are probably inflated; teachers are "closer to the action," in a better position to know whether these things have really occurred. The superintendent is also more conservative than the principal on matters he or she really knows something about -- new staff hiring and budget.

When the institutionalization indicators were summed to a composite scale, 4% to 12% of survey respondents said that none was in place. If one took as a criterion the presence of at least five of the seven indicators, only 20% of the sites (users' responses) or 32% (pooled administrators' responses) were adequately institutionalized. Finally, survey analysis showed NDN Title I and Title IV-C projects performing best on this measure, and significantly better than BEH projects.

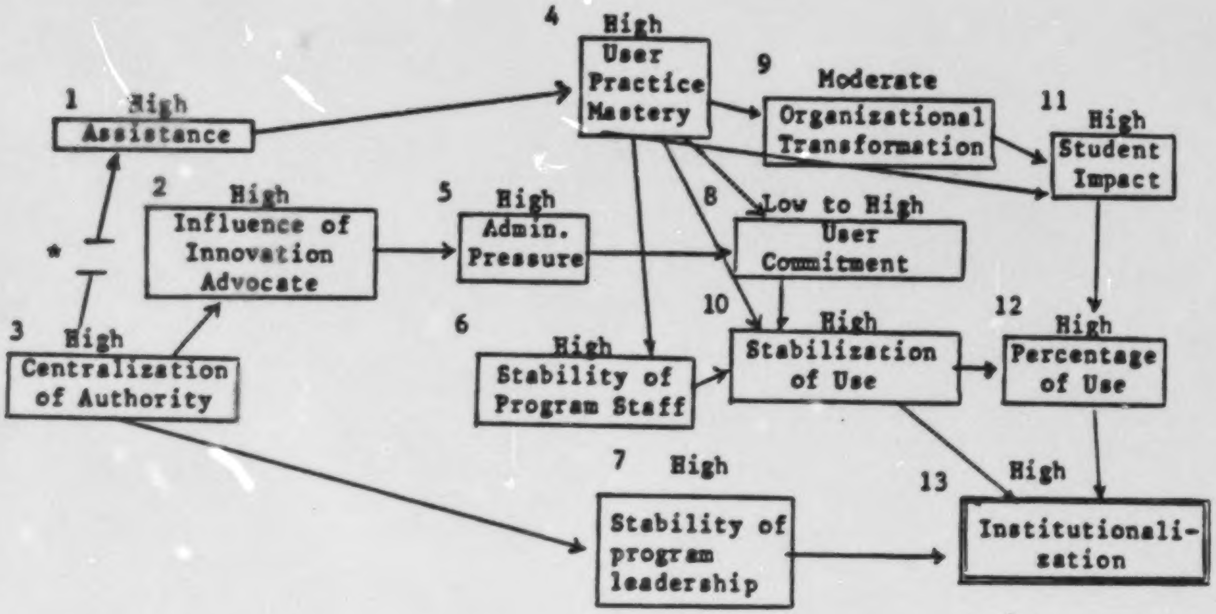
Field study data, using the more stringent criterion and confronting informants with researchers' assessments, found half the sites to have successfully institutionalized the new practices.

These institutionalization scenarios played themselves out in four different patterns. (1) The strongest and most frequent was that of mandated, stable use, where there was an explicit system-wide commitment for continued use of the innovation, and provision to stabilize that use. Without such a commitment at the system level, there was a second scenario where strong assistance and support combined to develop user mastery and commitment, thence stability and moderate to high institutionalization. In this scenario, administrative pressure during implementation was not influential and was, in fact, counter-productive.

It was also clear that institutionalization could fail, either by (3) vulnerability, where administrators had not done enough to guard the innovation against resistance or environmental turbulence, or by (4) indifference, where they simply did not care enough to supply the assistance and protection the innovation needed if it was to survive.

Since institutionalization is such a decisive outcome variable, it may be useful to lay out the first scenario, "mandated stable use," and to see how other outcome measures feed into institutionalization. The causal model, as elaborated in the field study scenario, can be stripped down to about a dozen variables, as indicated in Figure 5.

Figure 5: Mandated, Stable Use as a Route to High Institutionalization (Field Study Data)


1 High
Assistance
2 High
Influence of Innovation Advocate
3 High
Centralization of Authority
*
4 High
User Practice Mastery
5 High
Admin. Pressure
6 High
Stability of Program Staff
7 High
Stability of program leadership
8 Low to High
User Commitment
9 Moderate
Organizational Transformation
10 High
Stabilization of Use
11 High
Student Impact
12 High
Percentage of Use
13 High
Institutionalization

*Influence of other variables not discussed

To run briefly through the model, the central office administrator (2), who is usually responsible for curriculum and special projects (3), puts pressure on users (5) to adopt or develop the practice. Such strong-arming can, and often does, lower users' initial commitment (8). When, however, substantial assistance (1) is supplied, it tends both to increase users' level of technical mastery (4) and subsequently their commitment (8). In addition, modest organization rearrangements (9), usually revisions in scheduling, teaming and monitoring, are authorized to facilitate use and, in so doing, heighten student impact (11). In parallel, levels of user mastery and commitment, along with stability of program staff (6), leads to stabilized use (10), which both increases the percentage of eligible users (12) and leads to institutionalization (13) as the number of users increases and the practice supplants earlier ones. Stability of program leadership (7) also aids institutionalization. The general picture is one of administrative decisiveness, accompanied by enough assistance to increase user skill, ownership and stable use in the context of a stable school system. As noted earlier, this is not the only road to higher institutionalization, but it appears to be the most manageable in the double sense of channeling local energies and of actually delivering the outcomes being sought.

Looking across outcomes. Having examined each of the outcomes separately, noting the clusters of variables preceding and determining the levels of outcome, one can try for an integrated look at all six outcomes and their chief determinants. Collating this material will also help pull together the strands of earlier sections. The overarching question here is whether there are general outcome patterns and, if so, whether they have the same or similar antecedents. If no clear pattern emerges, are there distinct "families" of sites, each with a specific outcome profile and the same causal trails leading there?

By displaying five of the six outcomes on a grid going from the most successful to least successful projects, the field study found four global patterns. *The first pattern, associated with high levels of outcome on all the criterion measures, turns around "forceful leadership" as a means of implementation*. Local administrators lobbied successfully for a complex and demanding project, then imposed it or pressured users to adopt it. Program execution was highly prescriptive, which at first exacerbated users' resistance. User-administrator conflict diminished as users received district-to-building assistance along with peer assistance, grappled successfully with the practice, felt increasingly committed and began to see concrete and beneficial effects with regard to pupils and to their own instructional repertoires. Administrators looked after the institutional requirements for rooting the innovation firmly in the school and district, and for ensuring continued project leadership when there was turnover among staff and supervisors. A benign political and fiscal environment further helped institutionalization.

The second group of projects, which we called "overreaching," achieved a slightly lower level of desired outcomes. These were equally ambitious, change-bearing practices that entered the district through central office advocacy but which, unlike the first group, were somewhat entangled in the career plans of key people sponsoring and executing the project. Users coped under conditions of uncertainty, more often than not bailing themselves out as they went. Administrators provided initial and follow-up support, especially in the initial phases, and authorized users to make execution more manageable by changing the innovation. Through intense peer assistance and strong ownership of the practice, users worked through to fairly strong levels of mastery and project-relevant outcomes. They also came out at the end with changed perceptions about their roles and relationships. In the process, however, they tended toward exhaustion and responded by reducing somewhat the gradient of practice change, or by reviving career interests that would take them out of the district. Environmental turbulence accentuated staff instability along with leadership instability, as program and district administrators moved out or were reassigned. Personnel turnover, along with lower levels of later administrative commitment, cast some doubt on the future extent and longevity of use at the site.

The next group of projects, which we called "blunting/downsizing," achieved moderate to low outcomes as a result of reducing the scale, scope and teacher-transforming aspects of NDN innovations. These were innovations posing problems of local fit that triggered user demands to make changes. Administrators anticipated or acceded to these demands, both prior to and during project execution, in part to gain local endorsement. The result was a substantially reduced and adopted-for-convenience practice, whose impact could at best be modest. Because of later instability of leadership and environmental uncertainties, the innovation was not institutionally secure.

Finally, we have *low outcome sites; the label there was "indifference/discouragement."* Implementation was marred initially by opportunism, ham-fisted strong-arming and inadequate design work, all on the part of central office or intermediate unit administrators. Users were largely pushed into execution of a project that needed major de-bugging. When district-level or building-level help was not forthcoming, users gradually abandoned the practice with the implicit benediction of building administrators. In parallel, the original program advocates pulled back or left the site, so that the project effects were trivial and continuation was a dead letter.

Between-program differences. When outcomes were pooled, the field study could gauge the relative superiority of NDN versus IV-C projects. For the highest two groups, those achieving high and moderate-high outcomes, there was no winner. There was, however, a clear loser. Whereas all the projects in the moderate-low cluster were NDN innovations, the poorest performers were IV-C projects. Bear in mind, however, that we are talking about a 12-site sample. Outcome-clustering and scaling was not performed on the survey sample.

Re-reading the profiles for field study groups 3 and 4 gives a good account of the differences in process and outcome factors. They suggest that program differences *per se* are being swamped by other factors in accounting for final outcome levels. There is good evidence, however, that the low-outcome group was done in partly by initially poorly or incompletely designed projects that were never significantly improved upon. In the same vein, the NDN projects in the moderate-low group were all truncated versions of well-designed practices that had the potential of delivering stronger outcomes. Product quality, then, seems to matter. Title IV-C projects had initially less shape and evolved more over time than did NDN products. The quality of the project was less a factor in its adoption than the advocacy of the administrators and users who had developed it. NDN projects, on the other hand, looked more professional and came better recommended and legitimized, factors that weighed more in the adoption process than was the case at IV-C sites. But initial differences in project quality between NDN and IV-C sites in the higher-outcome groups disappeared as follow-up assistance and de-bugging allowed IV-C projects to attain a higher-quality and eminently disseminable status of their own. The next step in this cycle is, of course, the one that provides the pool of exemplary projects that constitute the NDN.

We also conducted a number of "horse-race" comparisons between programs on levels of outcome measured on our survey sample. These allowed us to look across all four strategies of interest. To take up the six outcomes we have just reviewed:

- There were no significant between-program differences on the general assessment of the innovation, nor with regard to impact on students or to extension of the practice;
- Title IV-C projects achieved significantly more user benefits than the other programs;
- While BEH and state-administered programs turned up significantly higher classroom-level organizational change, this proved to be a measure of incomplete implementation;
- The best performers, significantly so, on levels of institutionalization, were NDN Title I and Title IV-C projects.

Users and administrators: different worlds and different tasks. Plotting the sequence and interrelationships for each of the four outcome groups in the field study showed that the key variables for users were usually not the same ones as for administrators. Survey data analysis also showed that users and administrators live in different worlds and, as a result, usually attend to different stimuli and perceive differently those things they experience in common. If one looks operationally, with the intent of achieving higher outcome levels, the key tasks for administrators are finding or developing a practice with a good local fit, getting it adopted, providing ongoing technical and institutional support, and getting the practice stabilized and extended to a wider public of users and "routinized" in such a way as to incorporate the project in existing training, budget and policy cycles. In the "enforcement" scenario, there is the additional administrative task of keeping the project intact, both in terms of its core components and through preserving the magnitude of practice change the innovation required of its users.

Users have other fish to fry. What matters to them are the demands made by the innovation on their present skills and on the way they run their classrooms, the initial and ongoing assistance they have available, the degree to which they feel committed to the practice as they get on top of it, the possibility of settling down into a phase of masterful, impact-producing use, and the likelihood of deriving some skills and materials that are transferable to other parts of their yearly repertoire. The successful projects are clearly ones in which both agendas, those of administrators and teachers, get met.

Achieving Successful Outcomes: Implications for Policy and Action

1. Intervene differently in the cases of NDN and Title IV-C projects. In general, program differences are less important than differences in the way they are executed. One program does not perform consistently better than another, nor -- with the possible exception of BEH products -- does one do systematically worse. What matters essentially is how well each program is delivered, negotiated and backstopped, and how vulnerable the local site is to external turbulence. The first three factors can be managed, the last one can be attenuated. Externally developed and disseminated NDN projects may be of arguably higher quality initially than locally developed IV-C projects, but under certain conditions these differences disappear in the course of execution and seldom determine the success or failure of the project.

   Of course, the incremental cost of an adoption runs about 10% of a development effort, so at any given time dissemination is far more cost-effective given that the outcomes are not significantly different. But without some ongoing development, there would soon be nothing new to disseminate. The policy dilemma is how to best balance the mix of one's innovation portfolio between high cost-high risk-(potentially) high gain new issues, and low cost-low risk (if properly implemented) proven performers.

   Also, as mentioned earlier, the notion that NDN innovations are external, top-down efforts and IV-C innovations internal, bottom-up ventures needs to be unhorsed. Several IV-C projects are, in fact, as external to the adopting school as NDN projects. In addition, the reworking that most NDN projects get from the outset in adopting schools makes them into as much a home-grown invention as the locally designed IV-C projects. One important program-specific consideration for local action, however, is that NDN projects are probably being meddled with more than they should be if one is after significant outcomes; Developers/Demonstrators, in concert with State Facilitators, should jack up their monitoring procedures and try to marshal more early implementation assistance. Doing this should dissuade local actors from downscaling the original design in the face of poor local fits and heavy school-level implementation requirements. Another consideration, facing locally developed projects this time, is that greater back-end assistance is crucial for the new practice to reach the level of refinement equivalent to NDN products and necessary for getting stronger results. The use of a released-time "local consultant" is an obvious and inexpensive solution here; it should be built into the original project design.

2. To achieve desirable impact on students, remain faithful to the original ambition. Provide sustained external and internal assistance and work to get commitment through the technical mastery of the project that itself thrives on assistance. Administrative enforcement can help protect levels of original ambition but is not indispensable if adequate follow-up assistance is provided.

3. Diffuse innovations to the full pool of eligible schools and users by assuring user-level mastery and administrator-level authority. Technically mastered projects achieve their goals and thereby make a good case for wider use. That case gets strengthened, often with needed muscle, by building level and central office administrators who advocate and sometimes mandate more general adoption. Second- and third-generation users, however, need a decent infrastructure (training, prototype materials, streamlining of procedures) that first-generation users, on the strength of their commitment and "pioneer" status, can live without. If a minimal follow-up assistance mechanism is put in place for the first wave of users, it can readily serve as the initial infrastructure for the next wave. None of this is forbiddingly expensive and should be an easy task for external facilitators, working with local folk, to accomplish.

4. Recognize and use the potential of innovations as vehicles for increasing local instructional and managerial skills. As teachers and administrators carry out these projects, they learn a battery of skills that outlives and extends beyond the new practices. The greater the degree of practice change attempted, the more thorough-going these skills and the wider their applications. Because such transfer effects are by-products of the implementation process, they should be included explicitly in any evaluation of program outcomes, not consigned to the hybrid bin of "secondary outcomes." New skills that cement the use of new practices also increase the effectiveness of ongoing school practices. The most straightforward way of achieving wider capacity changes is to maintain the original scope and bite of the innovation -- which usually require administrative monitoring and less caving in to users' discomfort with the stresses of making a major practice change -- and to provide the follow-up assistance that can consolidate these changes. Another strategy is to let users run with an innovation that stretches their repertoire and to provide for extensive peer support.

5. Be as programmatic in institutionalizing innovations as in executing them. In the chronicle of research on dissemination and use of educational practices, we first put our chips on adoption, then on implementation. It turns out that these investments are lost without deliberate attention to the institutional steps that lock an innovation into the local setting. New practices that get built into the training, regulatory, staffing and budgetary cycle survive; others

don't. Innovations are highly perishable goods. Taking institutionalization for granted - assuming somewhat magically that it will happen by itself or will necessarily result from a technically mastered, demonstrably effective project -- is naive and usually self-defeating. Assuring technical mastery is a key component, but often needs to be accompanied by administrative muscle: pressuring non-users, extending the practice to oftentimes lukewarm teachers and building administrators, making the institutional changes that eliminate the prior practice, and locking the new practice into yearly management and budget cycles.

For minor projects, the building principal can do all these tasks; for major ones, the central office needs to get actively involved. Both have to know what the project is about, and what it demands at the in-the-trenches level. This is easy enough at the outset, when central office staff will frequently champion a new practice and ensure its adoption. It gets harder later in the game, when central office administrators have newer projects to contend with and have often handed this one off to people with less clout and usually less commitment. Maintaining some substantive role for central office staff during later implementation is probably the best way to keep them attentive and committed to institutionalizing the new practices. Another way is to explicitly consign that task to a credible, influential building principal who is favorable to the practice.

6. Address the specific tasks that users and administrators need to perform in order to get successful outcomes. Stripped down to its basics, innovating entails getting some core tasks done and warding off the classic forces that keep them from getting done, such as outside turbulence, the watering down of the project and the incompatibilities between the requirements of the innovation and the constraints of ongoing school and classroom life. Users, who work at first hand with the practice, need to get different things done and need different kinds of protection than administrators. Principals' agendas are in turn different from those confronting central office staff. Administrators want to find or develop a practice with a good local fit, to get it adopted without too much storm and stress, to provide ongoing technical and institutional support that is cheap and responsive, to get new practices stabilized and then extended to a wider public of users and "routinized" in such a way as to incorporate the project in existing training budget and policy cycles. Users want to keep the demands of an innovation in the ballpark of their present capacities, to handle school- and classroom-level constraints, to get as much initial and ongoing assistance as they can, to get on top of the practice without burning out, to see clear evidence of an impact on pupils and to derive some skills and materials that they can transfer to other parts of their repertoire.

External assistance, from the federal to state levels, would be far more effective if it addressed these tasks specifically and focused on those that each agency does particularly well. Survey data showed that this is beginning to happen; some external facilitators are working with central office staff, others with building administrators, others with users, and this help is no longer coming only at the front end. Still, the innovation process continues to be largely a process of serial orphaning: federal and state agencies hand off a project to external facilitators or local district administrators who ensure its adoption and hand it off to project directors and building administrators who, in the least successful projects, hand it off to users and turn their attention elsewhere. The net effect is often that of leaving users adrift when they need the most help and of under-attending to the steps needed to institutionalize the new practice. The all too frequent results are that users disengage or excessively water down the practice, that use is not extended beyond the original corps of teachers and support staff and that building administrators, unless they are strongly committed to the practice, follow the path of least resistance. The least little environmental turbulence, such as a budget cut or a shift of a key user or administrator, then blows the project away. By contrast, the most successful projects get the core tasks done by keeping central office staff in the action, mobilizing local consultants and other forms of local follow-up assistance, and extending use beyond the first generation of schools and users by making it a routine part of the yearly cycle. Doing all these things also buffers new practices from most of the external instability that affected a full third of the field sites, most notably the ones in urban settings.

CHAPTER VI: LESSONS LEARNED AND WHAT THEY MEAN: AN INTEGRATIVE SUMMARY

Introduction

Having distilled three years and eight volumes of research into the preceding sections of this volume, we now try to move up another notch to an integrative overview. In doing this, there is no way around the dilemma that these remarks may appear sweeping and unsubstantiated.

More patient, critical readers should consult both earlier sections and the individual volumes listed in the preface to fill in the missing details and qualifications.

We begin with a short list of overarching "messages" or lessons learned from the study. We then articulate our findings with previous empirical work in the same area. Finally, we take our findings into the arena of the chief issues confronting educational policy and research: dwindling resources, the equity/excellence issue, the tension between federal and local initiatives, and the priority areas for future research.

Ten Messages

Taking the pool of federally supported programs studied here, along with the federal, state and local policies which frame them, we can derive ten general conclusions:

1. Education Department dissemination activities are not tightly coordinated, ofentimes not even minimally coordinated. There is no monitoring or policy-integrating unit pulling the disparate functions and activity types together, no cumulative pooling of experience in any policy-relevant way. The tradeoff here is between maximum flexibility and diversity on the one hand and centrifugal, possibly rendundant, activity on the other.

2. In part, lack of coordination is a function of differences in basic assumptions about what to disseminate and how best to do it. Some units bank heavily on dissemination from the state level (e.g., Title IV-C, State Capacity Building), others on national networks (e.g., NDN, Teachers Center Exchange). Some assume that a practice developed in one setting can be readily replicated elsewhere; others believe in site-unique development as the only viable school improvement strategy. There are also contrasting assumptions about the importance of in-person assistance.

3. Federal initiatives in dissemination do not have much to do with what happens at the state level; they result in little program or policy changes. They can, however, enhance state-level initiatives that would otherwise never have got

off the ground. The number and comprehensiveness of these initiatives varies sharply among state educational agencies, with two main families: "maintenance agencies," which follow stable routines and accommodate to the administrative requirements of federal programs, and "development agencies," which focus on substantive goals, consolidate federal resources and launch comprehensive school improvement programs.

4. The ED programs are delivering farther-reaching and more consequential changes into a conventional school environment than had been supposed. Local personnel are not avoiding projects disseminated through the NDN or state education agencies that entail major shifts in classroom and school-level practices; many locally developed practices are equally ambitious. This is as much the case for "conservative" or "traditional" schools as for "innovative" districts. Subsequently, some of these projects get watered down and trivialized, but many retain their original size, bite, and scope. There is strong evidence that those farther-reaching changes get technically mastered and locally stabilized in the majority of cases and firmly institutionalized in roughly half the cases. There are equally strong indications that stabilized, change-bearing innovations produce strong impacts on pupils in terms of achievement gains and motivational shifts, that they get diffused to larger numbers of local classrooms and schools, and that they leave in their wake increased instructional and managerial capacities that go beyond the project itself.

5. The ingredients of successful adoption and implementation identified in other major empirical studies are also operative in this study. Essentially, they include the following: access to alternative projects to adopt or develop; face-to-face contacts in adopting disseminated projects; validated practices (in the case of disseminated projects) and carefully designed practices (in the case of locally developed projects); adequate materials and procedural guidelines coupled with responsive, in-person assistance during later implementation.

6. "Forceful leadership" is a strategy that often delivers major, impact-producing, and institutionalized practice changes. Because this is a controversial finding, let us spell it out more than the others. There are many ways of combining those ingredients into a school improvement strategy, and these combinations are often less chosen than dictated by local cultures, constraints and working arrangements. Still, there are things over which local staff across different settings have some consistent control. Institutionalizing a significant change of practice means making good on the ingredients listed above: developing or finding the project; getting it adopted; getting some external resources for it if they can be had, or freeing up some in-kind local resources if they can't; getting authorization to take some administrative

liberties (implied in the very fact that the practice means changing local arrangements); keeping the gradient of desired practice change high in the face of the inevitable stresses and strains; providing ongoing assistance, and building the new practice into routine operations, procurements and regulations.

Unless the project is a collective crusade -- a rare but existent species in our sample -- making *all* these things happen involves administrative authority *and* access to both external and internal resources. In our sample of sites, and more sharply in the field study sample, the ingredients were provided most often and most fully when a central office administrator was involved closely with the project -- from its development (of a local one) or identification (of an external one) through its implementation and into its institutionalization. When that involvement was *enlightened*, *forceful*, *resourceful*, and *longer-lasting*, highly significant practice changes were carried out and institutionalized.

Enlightened administrators were knowledgeable about the new practice; they also had substantive (curriculum coordination, instructional supervision) rather than purely line-administrative jobs. Enlightened and *forceful* administrators pushed through ambitious changes and held tight to the initial magnitude of practice change that strained users and conventional working arrangements. This involved preserving largely faithful renditions of the original model, yet acceding to sensible demands for modification that were based on the shortcomings of that model. It also involved some policing of building-level administration (principals, department heads) -- heavily at the outset and selectively later on. Principals then monitored users.

Adding *resourcefulness* to the equation meant just that: these people came up with external funding, freed up such local resources as released time and materials and authorized some bending of local regulations to make the project work better. These are, of course, all things that central office staff have discretionary power to do. Most important, they put together an infrastructure for ongoing assistance that often combined local expertise, external consultants, and debugging mechanisms (meetings, short training cycles, hot-lines). Pressure, knowledgeability, assistance and exhortations from a senior administrator resulted in successful practice mastery and observable impacts that those users -- and building administrators who felt initially put-upon -- accepted at first grudgingly, then with satisfaction. Others, we should note, welcomed this kind of prescriptiveness. Finally, those advocates who *stayed with* the project, rather than turning away or turning it over to users, furnished more of these resources longer and attended to the critical task of locking the project into yearly routines, budgets, and regulations. The weakest projects were those that were progressively orphaned -- first by their developers and trainers, then by central office staff, then by building administrators, then finally by users -- such that nothing of substance remained.

It is important to stress that we are not advocating knee-jerk authoritarianism as the royal road to school improvement. There are other, equally honorable, ways to do it that were spelled out earlier. We are suggesting that a central office administrator, who becomes an enlightened advocate of a new practice and actively assists building-level personnel to master it, has a better chance of actually delivering significant practice changes leading to school improvement than would be the case in most other scenarios. By "delivering," we mean controlling what happens, reducing unnecessary detours, getting to the desired outcomes without blunting the original intent, extending the practice throughout the district, and making it a durable part of the local landscape. Other strategies are more democratic but they are also more adventurous and, thereby, less certain to get these results. Also, such adventures are usually more expensive and seem more feasible in times of financial plenty than in these times of scarcity.

Finally, we should note that this more muscular strategy seemed as applicable to a local (IV-C) project as to a disseminated (NDN) one. As a general policy, it is a surer bet to advocate enforcement strategies for validated practices such as those in the NDN pool than for locally developed ones. In the latter case, a central office administrator can get his or her developer, advocate and enforcer roles blurred in such a way as to enforce an ill-conceived practice. Overall, Title IV-C projects did appear at the outset to be less well-honed than NDN disseminated ones at field sites. But this kind of project either died of its own weight or was successfully salvaged and perfected by the same mechanisms described earlier. The least successful scenario in the field study was that of the administrator-as-thug: ramming a poorly designed project down the throats of recalcitrant, ill-prepared users and trying to keep it in place by raw, mindless power. Not only did these projects fail, but they soured local staff on future school improvement efforts. Survey data are consonant with that depiction.

7. Innovations entailing significant practice change live and die by the amount of assistance they receive. As other studies have noted, most of this assistance is front-ended. NDN and state-administered projects provide good initial awareness, demonstration and training and materials, but leave local sites to their own devices when the project is actually underway. Most of those devices are feeble ones: they can, and do, compromise project success. Successful sites have more diverse and sustained assistance. Effective assistance is user-oriented rather than innovation-oriented (or assister-oriented) yet gets more so over time. It achieves effects -- such as reassurance, support, expansion of users' repertoires, problem-solving and increased interdependence -- that produce the technical mastery of the practice on which student gains and other school-improving goals are contingent.

Such assistance is not expensive, and a little, especially after starting up, goes a long way. A one-day follow-up visit from an external consultant is probably worth three days of front-end training. Peer assistance is easy to organize; coordinating follow-up assistance with a local teacher on a released-time basis is cheap and effective. Title IV-C projects in particular need some local assistance infrastructure to have better than trivial effects. Combining external with internal sources of technical assistance seems to dramatically increase magnitudes of practice change than either source by itself.

In some cases, however, early assistance is the most crucial. This is notably the case in rural schools, which seldom have the capacity to scan the environment for improvements. Local staff are too busy keeping school. Without some of the awareness-making mechanisms built into the NDN and state-administered programs, well-designed and significant answers to local problems would be less frequently at hand. Also, rural school systems are more responsive to federal-level or state-level help that is keyed to their operating constraints than conventional wisdom has suggested.

8. Site personnel implementing new practices who do not attend specifically to their institutionalization may have ephemeral results. Initial empirical research stressed the importance of adoption; new practices that aren't adopted get, of course, no results. More recent work showed that many adopted projects do not get used or get used indifferently -- also yielding no results. This study, concentrating on the dynamics of later implementation and measuring the extent of use of the innovation (how much) and the degree of correct use (how well), found that thoroughgoing implementation is a necessary but not sufficient condition of sustained improvement.

   As Yin (1978) found for a wider sample of public service projects, we also observed that technically mastered educational innovations could be discontinued. Technically mastered projects showing strong results could also be discontinued. Although longevity was partly a district-level political issue -- some poor projects get continued as well -- there were concrete steps that local officials could take to ensure institutionalization. These included writing the project into the school curricula, into standard operating procedures and into yearly equipment and staffing cycles. It also involved eliminating competing practices. Actually doing this depended largely on central office support -- thus the key role of the central office administrator closest to the new practices. New practices that were built into local routines and procurements were, for obvious reasons, likely to be continued. As a result, correspondingly significant practice changes were consolidated and desirable results could be repeated for future cohorts. Moreover, by the very logic of their now-routine use, well-institutionalized practices also expanded to the full pool of eligible classrooms and schools. Finally, they were resistant to what we came to call "environmental turbulence" - budget cuts, referendums, sudden personnel turnovers -- which often hobbled or even did in practices that were equally effective but less well tied-down organizationally.

9. School building staff do not experience federal dissemination strategies as more or less intrusive than state or district strategies. For teachers in a school, most any practice coming from elsewhere is externally developed. Often, in fact, state- and district-level projects are pressed on local users somewhat harder than those disseminated through such a federal program as the NDN. What looks to a policy analyst like a "locally developed" practice looks to a local practitioner like one "disseminated" from above. Similarly, it does not appear that locally developed projects, as exemplified by the Title IV-C program, are necessarily better local fits than those disseminated by states or through the NDN. Disseminated projects get negotiated, adapted and reconfigured about as much as IV-C projects get re-designed and amended. There are indications that NDN projects are changed early on by local site personnel as a by-product of adoption and IV-C projects later on once a locally developed practice has been tried out.

10. The infrastructure for school improvement is fragile. Placing the findings of this study as an overlay on the national scene does not yield a picture of stability. Many of the requisite conditions for the sustained, routinized pursuit of improvement are absent or threatened. The most fruitful proving ground of innovation -- ESEA Title IV-C -- has been consolidated into a block grant as part of the Education Consolidation and Improvement Act (ECIA) of 1981. Preliminary results of studies of the use of these funds reveal some distressing trends. In most states, the bulk of the monies are being used for the purchase of computer hardware and curriculum materials. These are, to be sure, potentially important ingredients to new or continued improvement efforts, but they will not get into schools by themselves, as documented in our study's findings of non-use of commercially distributed materials.

Perhaps the hesitancy of state officials to use their new discretion is warranted; federal education policy does seem schizophrenic and confused. Unfortunately, the changes in the flow, focus, and amount of money come at a time when the "larger" system has just begun to apply its collective learning about school improvement over the last decade. That this disjuncture coincides with a period of economic contraction, is a double blow. Reversion to more primitive and conservative postures may be inevitable, but the absence of solid leadership -- from any source -- does not bode well for the future.

Even the most extensive, locally responsive mechanism -- the National Diffusion Network (NDN) - hangs on a thin thread. It has no specific legislative activity and resides in the Secretary's Discretionary Account. While its unusual support in the field and on Capitol Hill has sustained it for several years, its future is uncertain. Its "central office" champions are being distracted, its "users" are turning over; it is not incorporated into the regulations and budget lines which would ensure official longevity. Renewed federal leadership is imperative to prevent a domino effect from destroying the fragile fabric woven over the last decade.

Addressing Earlier Empirical Studies

Looking back at the empirical research issues reviewed in Chapter II, the findings of this study add, we think, some useful resolution. Many of the salient points have already been made above in the ten general messages. To fold them into the context of outstanding research questions:

1. An overall formula for school improvement. As we noted in message 5, the main ingredients of successful local innovation are coming clearer as each successive study replicates and refines them. Following on the most recent large-scale study (Louis & Rosenblum, 1981), we also found that high-quality, validated practices disseminated with sustained external assistance into a well-functioning local infrastructure could be put into practice such as to deliver the outcomes they promised. Locally developed products could reach the same objectives, provided initial development was thorough and follow-up technical assistance was forthcoming.

2. Differences between programs. With the exception of the BEH program, whose adoption and outcome levels were lower, the other strategies - state-disseminated, nationally disseminated, locally developed -- finished mostly in a dead heat. NDN, especially the Title I subset, and Title IV-C projects were somewhat better institutionalized. All three approaches were vehicles for significant local practice change, and Title IV-C delivered high payoffs to its users. Once the practice was adopted or developed, the ways that each approach played out locally were very similar; local contexts metabolized them as easily or fully independently of the source. NDN and state-administered practices appeared to be as well-adapted as home-grown ones when local actors got their hands on them. In other words, when we compare different programs or their ultimate effects, we are no longer comparing the same units we began with, except in the cases of the most "faithful" implementations. Even there, it seems that there are usually many more differences within these programs than between them.

3. "Fidelity" and adaptation. This issue is, in large part, a red herring. Practices implemented in an orthodox way relative to the original design do not stay long that way when local conditions and constraints make them inoperable. Local actors are creative, rapid and relatively uninhibited in making changes they see as appropriate. On the other hand, remaining faithful to the original design may be the best way of keeping intact the change-inducing aspects of a new practice. Many, if not most, changes have to do with watering down a project in order to make a better local fit. Significant changes in local practices are, by definition, poor fits with ongoing working arrangements. Inevitably, both the practice and the arrangements will be modified in the course of implementation -- the "mutual adaptation" phenomenon

described in the Rand study. What this study adds to that construct is (a) the finding that faithfulness is higher than one had expected and (b) a close description of _how_ and _why_ greater adaptation may lead to a blunting of a once-significant practice change.

Part of the problem is that the fidelity versus adaptation issue has got tangled up in a dichotomy between external top-downness and internal bottom-upness, the idea being that "faithful" innovations are disseminated through the educational hierarchy to (presumably hapless) end users, whereas "locally adaptive" practices are home-grown, presumably more democratic enterprises. This turns out to be a caricature, at least when translated into a contrast between the NDN and state-administered programs on the one hand and the Title IV-C program on the other. From the viewpoint of the local school building and sometimes of the district, IV-C projects are often externally derived, top-down innovations. NDN and state-administered projects are subject to the same local negotiations and amendments as IV-C projects. The differences lie chiefly in the initial _source_ and are quickly blurred once local implementation begins.

4. _Teacher commitment and "ownership."_ We found no strong evidence that levels of commitment and local "ownership" were higher in locally developed (IV-C) than in disseminated (NDN, state-administered) projects. BEH sites were notably low on this dimension; not surprising given the absence of in-person help. Nor was there _less_ commitment in faithfully implemented innovations. The field study shows that there was often less _initial_ commitment when users were pressed into faithful replication of a demanding practice, but later levels were equal to more participatory implementations when the product was a respectable one and follow-up assistance was adequate. "Participative" projects _also_ needed these ingredients to _maintain_ commitment. Essentially, the experience of mastering a challenging new practice and of seeing tangible results -- notably with a hard-to-reach pupil population -- seemed to be a stronger commitment-heightening factor than the sources of a project or the ways it was managed locally. The important thing was to provide the conditions _enabling_ that practice mastery. At the same time, level of commitment was a strong predictor both of significant practice change and of positive results.

5. _Role of building administrators._ The model derived from the survey data played up the pivotal role of the principal in facilitating practice-related mastery on the part of teachers and in laying the groundwork for local continuation. To do this, principals had to be committed to the practice, to be perceived as strong leaders and far-sighted problem-solvers, and to be recipients of some external and/or district-level assistance. Essentially, once a new practice was "handed off" to the school building by its developer or by a central office

administrator, its fate lay largely in the hands of the principal. Those who provided resources and interpersonal support and who combined scheduling and organizing back-up with some "leveraging" of the staff seemed to get the best results. Field study data suggested that, in successful projects involving major practice change, principals were often accelerators in cars being driven by central office administrators who provided most of the thrust, resources and pressure, resulting in significant and durable outcomes. The pivotal role of central office personnel thereby emerges. Both survey and field study data highlight the project identifying assistance-providing and institutionalizing actions of central office people; their help contributes strongly to classroom-level change. Field study data add the "enforcement" role.

6. External assistance. One of the major contributions of this study is the wealth of detail it furnished about "external facilitators": their institutional nesting, orientations, role demands, perceptions, interventions and effects. One important finding from these data is that external facilitators work at different leverage points in a local school district and do it in definable, replicable and consequential ways. Types and amounts of external assistance are associated with successful implementation, especially when there is follow-up on initial site contacts and linkage to internal sources of assistance. Indeed, follow-up assistance seems so useful that, with the same number of dollars, some "front-end" help could well be reallocated to the "back end" in the form of consultancy and brief on-site training.

7. Internal and external "climate." This study does not shed much more light on the characteristics of within-school work "climates" that facilitate school improvement. Such factors as "principal's leadership" and "problem-solving effectiveness" were associated with practice mastery and perceived benefits of the innovation, but other climate factors did not seem to matter, either for locally developed or for disseminated projects. There was some indication in the field study that "internal climates" are more variable than has been acknowledged -- "cooperative," "friendly" schools can turn ugly in the course of implementation, and individualistic, aloof places can warm up interpersonally through the shared experience of enacting a building-wide practice change. This could be consonant with recent organizational research (e.g., Weick, 1979). It is likely that internal climate factors have systematic effects only at the extremes -- very rigid and impersonal places being a hindrance and highly flexible, friendly places being a facilitator of successful implementation.

On the other hand external "climate" factors appear to be important and to be getting more so in the face of dwindling resources, when local schools are less buffered from central office and environmental pressures. Field study data showed that these contextual variables are more unstable and impactful in urban areas than elsewhere. Elsewhere, they play a more subterranean but influential role in determining how much and how school-based practices can be changed. Any attempt to change local practices significantly brings the central administrative office into play and usually involves school boards and community associations, either at the outset - in exerting pressure in the direction of change -- or later on, in authorizing the changes in school regulations and budgets implied by the institutionalization of the practice. In more rural areas, the relationships between school board members and central office administrators are often the unseen hands determining whether new practices are initially and ultimately trivial or momentous ones.

Speaking Briefly to Policy Issues

Working with Dwindling Resources

This is clearly the wave of the immediate future. Although our data did not address this issue specifically, they add two pieces of information. First, spending more money on the same innovation at one site than at another did not in itself seem to affect ultimate results significantly. Spending too late was probably fatal, and spending more for follow-up assistance might have made a difference. Second, none of these projects taken singly was expensive unless an entirely new institution was being created. The costs of a short, pre-implementation training materials, follow-on consultation and released time for later meetings and training are not heavy ones; they amount to less than a yearly teaching salary.

What the current trends do suggest is that local school districts will have to pull existing budgets tighter from the start to get the needed institutional slack for school improvement rather than depending on initial federal seed monies. This means doing fewer things and relying more on in-kind resources (e.g., released time) than outright budgets. But the upbeat message is that resources spent on these progams seem, overall, to be good investments. If school districts want to get better performances from both staff and students, it is going to involve changing customary practices, which almost invariably entails finding or developing new ones and trying them out to make sure they work. That, in turn, requires some institutional slack -- to hunt around, to train or free up people, to develop or purchase materials, to pilot a new project while keeping customary practices going. Managed competently, these programs seem to be among the most cost-effective and surest-fire ways of doing it.

Federal Intervention Vs. Local Autonomy

There are those who believe that any federal support to local schools is an unwarranted intervention into local prerogatives. The policies which supported the programs we studied, however, in no way dictated what should go on in schools and classrooms. Rather, they offered alternatives to schools wanting to improve their practices. The message was: here are some different, workable approaches to your needs, or you can design your own. Schools can chose different disseminated practices, build one for themselves, or do nothing. What we find is a clear illustration of how the federal government can support improvement while imposing nothing on local settings. Local choice remains intact.

Equity and Excellence

The strong results reported for major-change practices indicate that both disseminated and locally developed projects can improve pupil performance and attitudes. They can also enhance schools' instructional and administrative capacities. More important, we have a clearer fix on how this actually happens and believe that many of the contributing factors are replicable and manipulable elsewhere. Moreover, this studv shows that the school improvements mediated through these progams reach low-performing, often disaffected pupils in schools with a conventional or even uneventful history of innovativeness. There are some indications from the initial census we took of candidate sites that these programs have a harder time reaching rural districts. This seems to be more a problem of local outreach or resource poverty than of any defect within the state-administered, NDN or Title IV-C approaches. When these programs *do* hit rural areas, they do well there. Any policy which could broaden the dissemination capacity of the programs and create a little more institutional slack in these areas for seeking out or developing new practices would produce results. For disseminated practices, the best single local investment might be the freeing up of a central office administrator to play a part-time role as a "linker" - someone who can identify and adapt promising new practices being disseminated through a state-administered or NDN-like program and can provide or secure sustained assistance from within.

The Tension Between Federal and Local Initiatives

We have not come down on the option between disseminated and locally developed approaches to school improvement; both can work well and both appear to work in pretty much the same ways once actually underway. Neither is more intrusive. Locally developed projects of any magnitude may be harder to mount because they could be harder to design well initially and because no single constituency can usually force through a significant shift in the *status quo* short of an emergency situation. Federal initiatives may be initially more quality controlled, but they, too, may be watered-down and may even bypass a local school district that is not on the lookout for them or not plugged into a state-level agency that is.

On the broadest policy level, we think that the dissemination of validated practices, including both some start-up and follow-up assistance, is a cost-effective, high-yield strategy. Local districts *can* develop equally strong products, but most don't. Those that *do* tend to respond to the impetus and incentive of a state or federal development priority, as did virtually all of the NDN projects. Thus, a sort of multiplier situation has evolved, whereby these early development investments which proved effective now have a means of reaching large numbers of others in a cost-effective manner.

Separate, uncoordinated state dissemination structures are likely to be more redundant and costly than a concerted regional or national network in the manner of the NDN, which also seems sensitive to local variations. Thus, making good practices more widely available will pay off in cases where local districts and state agencies are unable to do it by themselves. This case appears increasingly typical, as slack resources evaporate, and it is not clear whether channeling more development funds directly into them would be as cost-effective as making available validated and locally adaptive practices now is. Such a strategy is all the more promising in light of the fact that we are now reasonably close to having a "social technology" for the dissemination of new practices that improve school performance.

Needed Research

All too often, research is inflationary; one new finding calls for a half-dozen studies to replicate and extend it. Research is also highly perishable; as economies and policies evolve, strong findings decay. In closing, we propose briefly five areas of study we think can now be more focused and centripedal than this more comprehensive one, and which address issues we expect to be focal ones for years to come.

1. *The role of central office personnel*. These people, especially "substantive" (e.g.. curricular, instructional) supervisors, appear to be linchpins in the school improvement process. They play major roles in seeking out, developing adopting, executing and institutionalizing new practices, notably those involving significant practice changes that can result in significant improvement. We clearly need to know more: about career paths of these people, about differences in places with and without such roles, about links between these people and the larger educational/administrative environment on which they draw.

2. *External facilitators*. These are also key agents, without whom central office administrators would be far less effective, and we now know a good deal about them. What this study suggests is that some are effective at different *levels* (district office, building administration, classroom, school board) and at different *times* (adoption, early use, later use, institutionalization). Mapping these differentiations should

provide a framework for recruiting, training, and supporting external facilitators and for making the most of their necessarily brief time on site. Another priority area is the partnership between external and local facilitators, notably the ways in which externals can successfully turn facilitation over to internals.

3. *Discontinuation*. For several reasons, this study only worked with do-ers -- sites which were ostensibly involved in implementing a new practice. Within this universe, the field site sampled purposively for "dwindling" projects but was able to study few. We would know a lot more operationally about winners if we knew more intimately about losers. There has been illuminating case study work [e.g., Smith & Keith (1970); Gross, Giaquinta, & Bernstein, 1970)] and some exploratory multiple-case research (Parish & Arends, 1982), but as yet no larger-scale inquiry.

4. *Costs*. How much does a successful, locally developed project cost? A state-administered one? A nationally disseminated one? Who pays which part? As budgets contract and constituents demand cost-accounting, school improvement efforts will have to be leaner and research on school improvement both more sensitive to and less cavalier about financial issues.

5. *Enforcement*. This is a classic case of one study giving birth to another. We have come out with a phenomenon of interest and importance that we did not expect to find and, in many ways, would have preferred not to have found. Someone else needs to *begin* with that focal area and confirm, qualify or discredit it, both with similar and with more broad-based samples. Is the four-factor "enforcement" model we have derived a valid one? Is it a replicable one, or does it depend on setting-specific contingencies and unique individuals? How can one make certain that, along with the muscle (which is an easy recommendation to make to people in positions of authority), the *other* ingredients -- the sapience, the tutoring and the resource-giving -- *also* get incorporated into local school improvement policies?

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